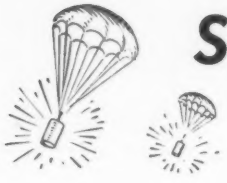
MODERN PACKAGING



Six metal containers dropped into the night

AS THE BOMBING PLANE roared over its objective, six parachute flares were dropped into the night.

Seconds later the target below stood forth . . . bathed in brilliant light.

Great quantities of these flares are required to assure accurate bombing. *And each one is packed in a sturdy metal container.* Parachute flares are merely one example of Canco containers in actual combat . . . another reason why many of you must do without metal containers now.

Other examples include:

Fuse Containers—*hermetically sealed key-opening cans to protect delicate fuses until they are ready for use.*

Emergency Water Containers—*for supplying sterile water used in washing and irrigating wounds.*

Portable Blood Bank Containers—*they protect blood-plasma kits to be used in giving life-saving transfusions in the field.*

Anti-Aircraft Gun Motor Containers—*especially designed to protect delicate motors when not in use.*

Metal First Aid Kits—*hermetically sealed against bacteria and poison gas.*

And numerous others.

We are also producing tremendous quantities of containers for essential foods for the armed forces . . . for the home front, too.

In addition, American Can Company machine shops are devoting a large part of their facilities to the production of specified tools and weapons of war.

These are a few of the reasons why metal containers are not available for some products today . . . reasons why many of you have been forced to adopt substitute packages for the duration.

We are fully aware of the problems you face and are doing everything possible to perfect the manufacture of substitute containers from available materials. Our research efforts are being redoubled to make such containers available for many products in the near future.

American Can Company
230 Park Avenue, New York

FIRST CLASS
PERMIT No. 2656
(Sec. 510, P L & R)
NEW YORK, N. Y.

BUSINESS REPLY CARD

NO POSTAGE STAMP NECESSARY IN THE UNITED STATES

Packaging Catalog

122 East 42nd Street

New York, N. Y.

Postage Will be Paid By Addressee

No Postage Stamp Necessary If Mailed In the United States

BUSINESS REPLY CARD

First Class Permit No. 2656 (Sec. 510, P. L. & R.), New York, N. Y.

MODERN PACKAGING

122 East 42nd Street

NEW YORK, N. Y.

PACKAGING CATALOG,
122 EAST 42nd STREET,
NEW YORK, N. Y.

Gentlemen:

Please put in my order now for.....copies of the huge 1943 PACKAGING CATALOG at NEW LOW PRICE OF $2.50 PER COPY.

Remittance Enclosed ☐ Send Invoice ☐

NAME.....

STREET.....

CITY.....STATE.....

Foreign and Canadian Price $1.00 higher, payable in U. S. Currency or equivalent.

1242

MODERN PACKAGING
122 EAST 42nd STREET,
NEW YORK, N. Y.

Order for New Subscription

Please enter my subscription to begin with the.....issue.

$5.00 for one year ☐ $8.00 for two years ☐
Remittance enclosed ☐ Send Invoice ☐

Name.....

Your position (or profession).....

Company.....

Street.....

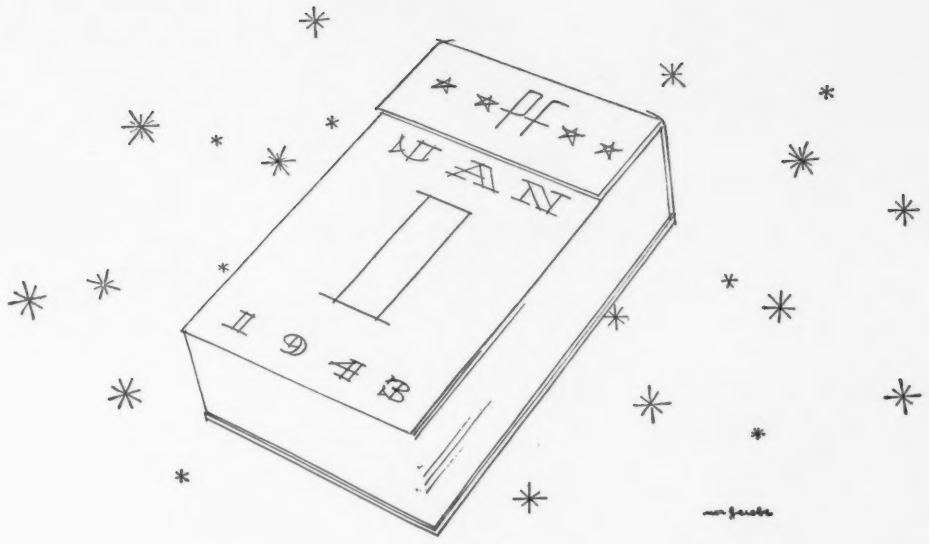
City.....*State*.....

Product Manufactured.....

This is NOT an expiration notice

Foreign and Canadian Rates Higher. All Subscriptions Payable in U. S. Currency or its Equivalent.

1242



FIRST EDITIONS

ONCE A YEAR, unless you are a hermit and a recluse, a *first edition* is placed on your desk . . . or hung on your office wall. It is unique in the way of *first editions*, for it is anything but limited. Every man has, or may easily obtain, one. And, all are alike in content, however varying their general appearance.

Here is the stuff of which life itself is made. Here you will find your dreams, your hopes, the realization of your fondest ambitions. But every man will not react to this *first edition* in the same way. To some it will be a chore to merely loosen the pages. To others it will be a constant challenge. They will rip off each passing day as though it hid a long sought opportunity.

But whether this *first edition* bores or intrigues, blesses or condemns, we are not here to moralize. We merely bring you news of another publication which is soon to go into its *first edition of 1943*, the Phoenix Flame, published by the Phoenix Metal Cap Co.

You may not have read, or seen, or even heard of, this little publication. There must be many that haven't. Thus, this one advertisement each year inviting the uninitiated to become regular subscribers. There is no charge, no obligation. But its distribution is *limited* to users of metal and molded caps for glass packages. If you come within this classification we believe you will find something between its covers each month to interest, inform, instruct or amuse.

Make a notation on the *first edition* which now graces your desk to write for the *first edition* of the Phoenix Flame for 1943. Address our Chicago office.

PHOENIX METAL CAP CO.

2444 West Sixteenth Street
CHICAGO

3720 Fourteenth Avenue
BROOKLYN

Modern Packaging

Publisher, CHARLES A. BRESKIN
Editor, CHRISTOPHER W. BROWNE
Managing Editor, PEARL HAGENS
Associate Editor, IRIS VINTON
Art Director, FRANK M. GEMSA

VOLUME 16 | JANUARY 1943 | NUMBER 5

G. T. Kellogg

OUR WASHINGTON OFFICE

Beginning January 1, Modern Packaging will have a Washington office in the National Press Building with G. T. Kellogg as full-time editor in charge. More and more, the national capital becomes the control center of the country's economy. More and more it is the responsibility of the business paper to focus attention where the nation's heart beats. It is with that idea in mind that we provide this new service to our readers. Mr. Kellogg takes over this assignment after 12 years Washington experience—five as general assignment reporter for the *Washington Evening Star*, three as general correspondent for a group of Southern dailies, one as assistant to the editor of the *U. S. Government Manual*—a publication covering organization and function of all governmental departments and agencies. He has also represented numerous business papers and news services in Washington—and knows his way around the capital.

Special Feature

Look in Both Directions (a review and forecast) 35
1. A Year of War Packaging 36
2. Suppliers Tackle Shortages 38
3. Users Tighten Their Belts 44
4. Machines Turn Out Weapons 49
5. What's Ahead? 51

General

Packing and Storing Dehydrated Vegetables 52
Design Histories 58
Cosmetics through Wars and Revolutions 60
Continuous-Thread Paper Closure 63
Packaging Pageant 64
Boneless Meat—New Weapon for U.S. Fighters 66
Gift Boxes for the Axis 72
Lighter Fluid in Bottle with Plastic Spout 76

Display

Posters Help Balance Nation's Market Basket 77
Display Gallery 80
News Story at the Point of Sale 82

Technique

Psychometric Testing 85
Giant "Gas Masks" to Prevent Plant Odors 88
What Darkens Packaged Orange Juice 90
Good-by Hand Bottling 94

Departments

Keep Your Ear to the Ground 96
Washington Review 98
U. S. Patent Digest 100
Equipment and Materials 102
Plants and People 104
For Your Information 106

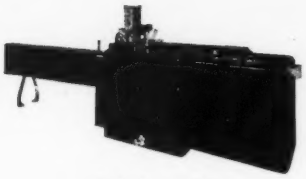
COVER—By George De Lara

ALAN S. COLE, General Manager

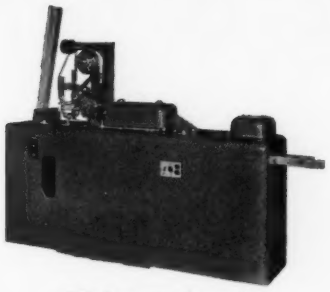
WALTER S. ROSS, Promotion
L. B. CHAPPELL, Los Angeles
P. H. BACKSTROM
M. A. OLSEN
J. M. CONNORS
F. L. POSNER, Circulation
F. M. McQUILLEN, Production

Published the 1st of each month by Breskin Publishing Corporation. Publication office, Twentieth and Northampton Sts., Easton, Pa. Executive and Editorial Offices, 122 E. 42nd St. (Chanin Bldg.), New York, N. Y. Phone AShland 4-0655. Mid-Western office, 221 N. LaSalle St., Room 1338, Chicago, Ill. Phone Randolph 6336. Pacific Coast Office, 427 West 5th St., Los Angeles, Cal. Washington, D. C., office, National Press Bldg. Sponsors of the All-America Package Competition. Subscription $5.00 per year in United States; Canadian, $5.50; foreign, $6.00. Two year subscription United States, $8.00; Canadian, $9.00; foreign, $10.00. All foreign subscriptions payable in United States currency or equivalent in foreign currency computed in current exchange. Price this issue, 50c per copy. Copyright 1943 by Breskin Publishing Corporation. All rights reserved including the right to reproduce this book or portion thereof in any form. Printed in U. S. A. Acceptance under the Act of June 5, 1934, at Easton, Pa. Authorized October 7, 1936

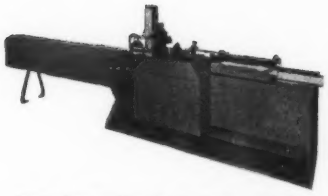
Member of Audit Bureau of Circulations



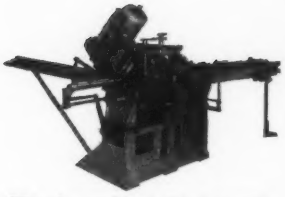
Cartoning machine for bottled medicinal products



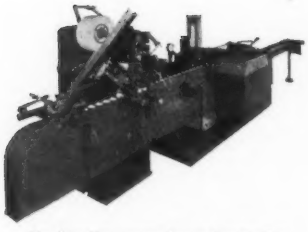
Cellophane wrapping machine



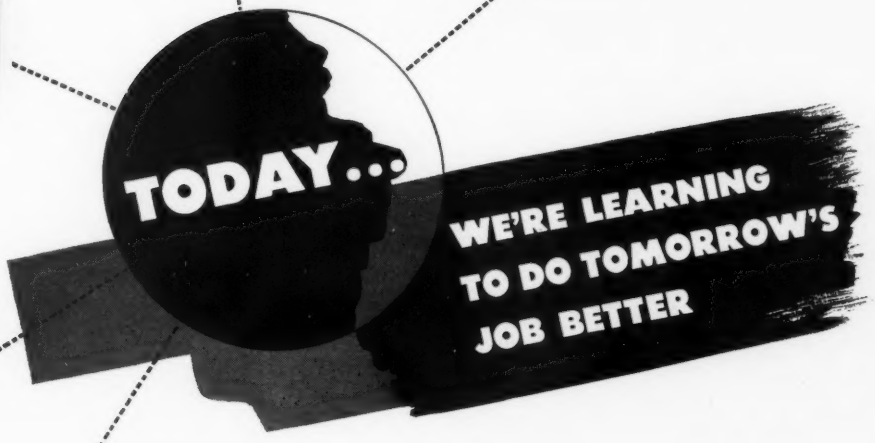
Cartoning machine for packaging chocolate



Wrapping machine for blasting powder



Combination wrapping-and-cartoning machine for packaging gauze bandages



In step with a *Fighting* America, we are working harder than we ever have before on *the most important job* we have ever undertaken—building the products needed to get this war won . . . building packaging machines, too, on *high priorities* to meet today's urgent war production needs.

While we are concentrating on the most important work ever asked of us, we are learning to do do *tomorrow's* job better. We are acquiring *new* skills in precision machining . . . working to *closer* tolerances . . . learning *new* methods and working with new materials.

We are raising our sights, too . . . getting new ideas of design and efficiency that will stand us in good stead after Victory when new ideas in package design and merchandising will necessitate improved, newly-designed packaging machines to do the job.

Redington, always builder of the *finest* in packaging machines, will serve you even better in the future.

F. B. REDINGTON, CO. (Est. 1897) 110–112 So. Sangamon St., Chicago, Ill.

REDINGTON

PACKAGING MACHINES

FOR CARTONING • WRAPPING • SPECIAL PACKAGING

WE SYMPATHIZE
PORT ARMS!
'BOUT FACE!
RI' SHOULDER ARMS!
ATTEN-SHUN!

WITH YOU, ROOKIE...

We've been in the same spot

ORDERS POUR IN FROM EVERY DIRECTION, BUT WE'RE MANAGING TO CARRY OUT MOST OF THEM

Yes, we're like the rookie. We've been on the spot. Orders have been coming at us from right and left—and between government requirements for cartons and paper board and the needs of our regular customers, we've been scratching our heads plenty.

But we're getting conditioned to war conditions. And somehow, some way, we're managing to satisfy the needs of most buyers. At least, they know we're doing our level best to deliver our standard makes of boards, as well as our specialties—Greasene, Hydrotite and *Coated* Lithwite.

We've found time, too, to develop some satisfactory substitutes for tin and other restricted materials. In fact, we believe our staff has done an outstanding job in helping customers with many of their wartime packaging headaches.

Perhaps we can be of help to you, right now. If so, drop us a line. We'll do our best to serve you—you can count on *that*.

The GARDNER-RICHARDSON Co.

Manufacturers of Folding Cartons and Boxboard
MIDDLETOWN, OHIO

Sales Representatives in Principal Cities: Philadelphia • Cleveland • Chicago • St. Louis • New York • Boston • Pittsburgh • Detroit

GARDNER-RICHARDSON — FROM PULP TO FINISHED PRODUCT — ENGINEERED PRECISION

WE thank our customers

who are helping us

to contribute

Sylvania* Cellophane

to war needs.

☆

SYLVANIA INDUSTRIAL CORPORATION

122 East 42nd St. New York City

"Buy U. S. War Bonds and Stamps"

*Reg. U. S. Pat. Off.

Names aren't always especially revealing . . . a few little letters strung together phonetically may fail, completely, to make any clear cut impression on the mind.

So, when in your search for a new source of glass containers, the name CARR-LOWREY is suggested, it may not be symbolical of anything . . . to you.

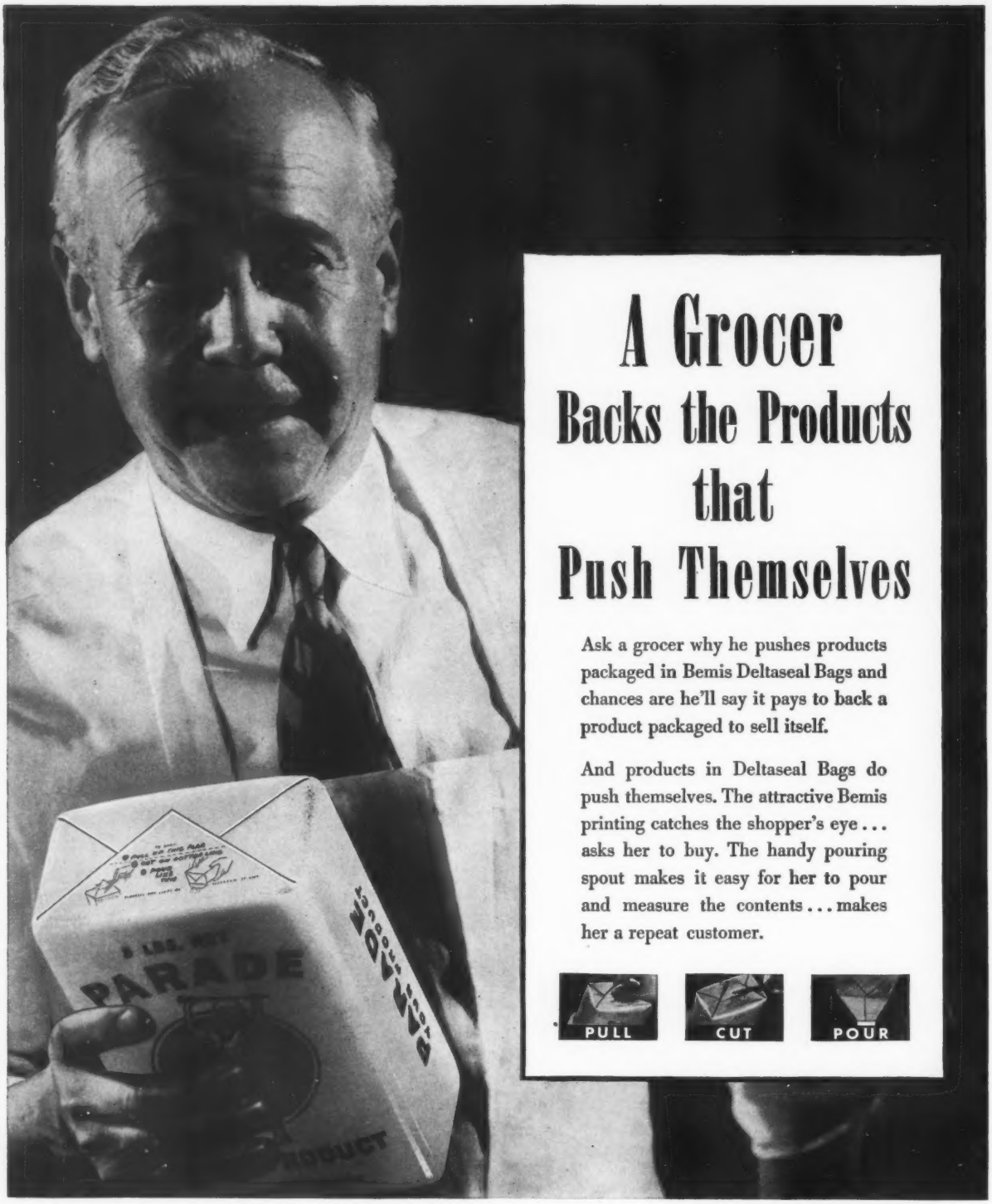
Nevertheless, it *is* representative of a group of marketing, designing and production specialists whose skilled and experienced handiwork has wrought the glass packages which today enclose many of America's best known cosmetics, drugs, household and food products.

Painstaking attention to detail . . . extreme concern about precision . . . continuous insistence upon accuracy . . . these, too, are all synonymous with the name CARR-LOWREY.

No, *you never can tell* what is back of a name like ours . . . unless you've had the pleasure of working with an organization like ours.

CARR-LOWREY GLASS CO.

Factory and Main Office: BALTIMORE, MD.
New York Office: 500 FIFTH AVENUE
Chicago Office: 1502 MERCHANDISE MART



A Grocer Backs the Products that Push Themselves

Ask a grocer why he pushes products packaged in Bemis Deltaseal Bags and chances are he'll say it pays to back a product packaged to sell itself.

And products in Deltaseal Bags do push themselves. The attractive Bemis printing catches the shopper's eye . . . asks her to buy. The handy pouring spout makes it easy for her to pour and measure the contents . . . makes her a repeat customer.

BEMIS BRO. BAG CO.

Headquarters for the

DELTASEAL System of PACKAGING

Minneapolis, Minnesota

OFFICES: Baltimore • Boston • Brooklyn • Buffalo • Charlotte • Chicago • Denver • Detroit • E. Pepperell • Houston • Indianapolis • Kansas City • Los Angeles • Louisville • Memphis • New Orleans • New York City • Norfolk • Oklahoma City • Omaha • Peoria • St. Louis • Salina • Salt Lake City • San Francisco • Seattle • Wichita

Who made the submarine a surprise package?

YOU may not have realized it, but the submarine is as American as ice cream sodas and "double features."

The first submarine for warfare was built by an American back in 1777. It was primitive, but it nearly sank an enemy man-of-war. The first sub to sink a ship was an American invention.

Quite a package, the submarine. Cleverly designed, light but sturdy to protect its contents, easy to handle . . . it fills a specific need.

But who really perfected the submarine? Who gave it the eyes that make it a surprise package?

Right! An American. The periscope was invented in 1864 by an acting chief engineer in the U. S. Navy.

The old American ingenuity—you can't beat it! It's the same "know how" that's going into the making of metal containers today... containers that must protect food for civilians, for our fighting men and for our Allies... containers that must be made with less tin available than ever before!

Continental — packaging headquarters for 12,000 peacetime businesses— is busy making a good share of these containers. We're also using every available facility to produce a wide variety of war materials, on both a prime and a sub-contractor basis. Production is our business, and we're going "all out" to supply the things which skilled workmen make best.

We're also looking ahead to the time when many new things we're now learning and doing will be applied to peacetime packaging. If you, too, have plans for the future, we'll be glad to help. Continental Can Company, 100 E. 42nd St., New York, N. Y.

What will be the PACKAGE of the FUTURE?

The package of the future will be the package that best meets *all* these 10 important points:

1. Protects against light, heat, and dirt.
2. Does not chip, break, or tear.
3. Is adaptable to *highest* speed filling operations.
4. Is economical to pack, ship, and handle.
5. Light weight, compact, no waste space.
6. Moisture and vapor proof, impervious to temperature changes.
7. Easy and convenient to display, sell.
8. Available in wide variety of sizes, shapes, styles (over 500).
9. Offers maximum convenience and safety in consumer usage.
10. Permits high processing temperatures, certain hermetic sealing.

These points made the metal container *first* in packaging. If there ever is another package that has *all* these qualifications, we'll be making it!

CONTINENTAL CAN COMPANY

Packaging Headquarters for Industry

KIMBLE'S NEUTRAGLAS (N-51A GLASS)

Kimble NEUTRAGLAS has been developed by Kimble research to assure the manufacturer that the product he has held to such high standards will not deviate from his control sample because of any impairment from the container. Kimble NEUTRAGLAS is highly resistant to chemical attack and solvent action—a protective feature the medical profession recognizes as vital.

Standardize NOW on Kimble Ampuls, Serum Vials, Serum Bottles and Clinical Glass Containers made of NEUTRAGLAS (N-51A Glass)—CLINICALLY SAFE.

• • • *The Visible Guarantee of Invisible Quality* • • •

KIMBLE GLASS COMPANY . . . VINELAND, N. J.

Expert Assistance in the Development of

WAR TIME PACKAGES

For **SHELLS**

For **WAR MATERIAL** and Critical Devices

For **CONSUMER ITEMS** (Including Foods)

affected by Government orders covering packaging materials

★ *Do you have a war time packaging problem?*

If the solution lies in a package made of paper, fibre tubing, felt, transparent plastic—or a combination of these materials with metal—*Ritchie can help you!*

For war time packages of every kind and every size, Ritchie developments have made possible a steady supply where otherwise there might be none.

Send for "War Time Packaging" which shows how Ritchie has helped others solve their packaging problems. Illustrates many new war time packages—many applications of substitute materials.

Typical examples of packaging problems to which Ritchie engineers have applied their skill and experience—

105 mm. shell containers made of fibre tubes with heavy metal ends . . . all-paper flashlight cells for U. S. Signal Corps . . . metal end fibre tube ration cans for U. S. Army . . . tinless cans for food products, cigars, etc. . . . moisture and grease-proof industrial packages . . . humidity measuring devices for adjusting machine guns . . . non-metal lipstick containers . . . shaker and pour top cans made entirely of non-critical materials.

SET-UP PAPER BOXES
FIBRE CANS
TRANSPARENT PACKAGES

W. C. Ritchie AND COMPANY

8840 BALTIMORE AVENUE • CHICAGO

NEW YORK DETROIT LOS ANGELES ST. LOUIS MINNEAPOLIS DENVER MIAMI

★

Change in Firm Name

★

Sav-way Tool and Machining Co.

BECOMES

Sav-way INDUSTRIES

In the past this company has been known as Sav-way Tool and Machining Co., engaged in the manufacture of precision tank and aircraft parts . . . a line of gauges . . . and internal grinders.

Today Sav-way is composed of six major divisions:

End Mill	*Plastic*
Gauge	*Precision Production*
Internal Grinder	*Specialty Engineering*

With this change of name and expansion in activities, we announce the opening of our new general offices and main plant at 4875 East Eight Mile.

In addition, two other plants have recently been purchased and a fourth is now in the course of construction. These four plants, together with our physical and chemical laboratory, have been newly equipped with the latest and most efficient machinery to help meet present and postwar needs.

"It will be done" is the significant slogan adopted by the young and aggressive personnel of:

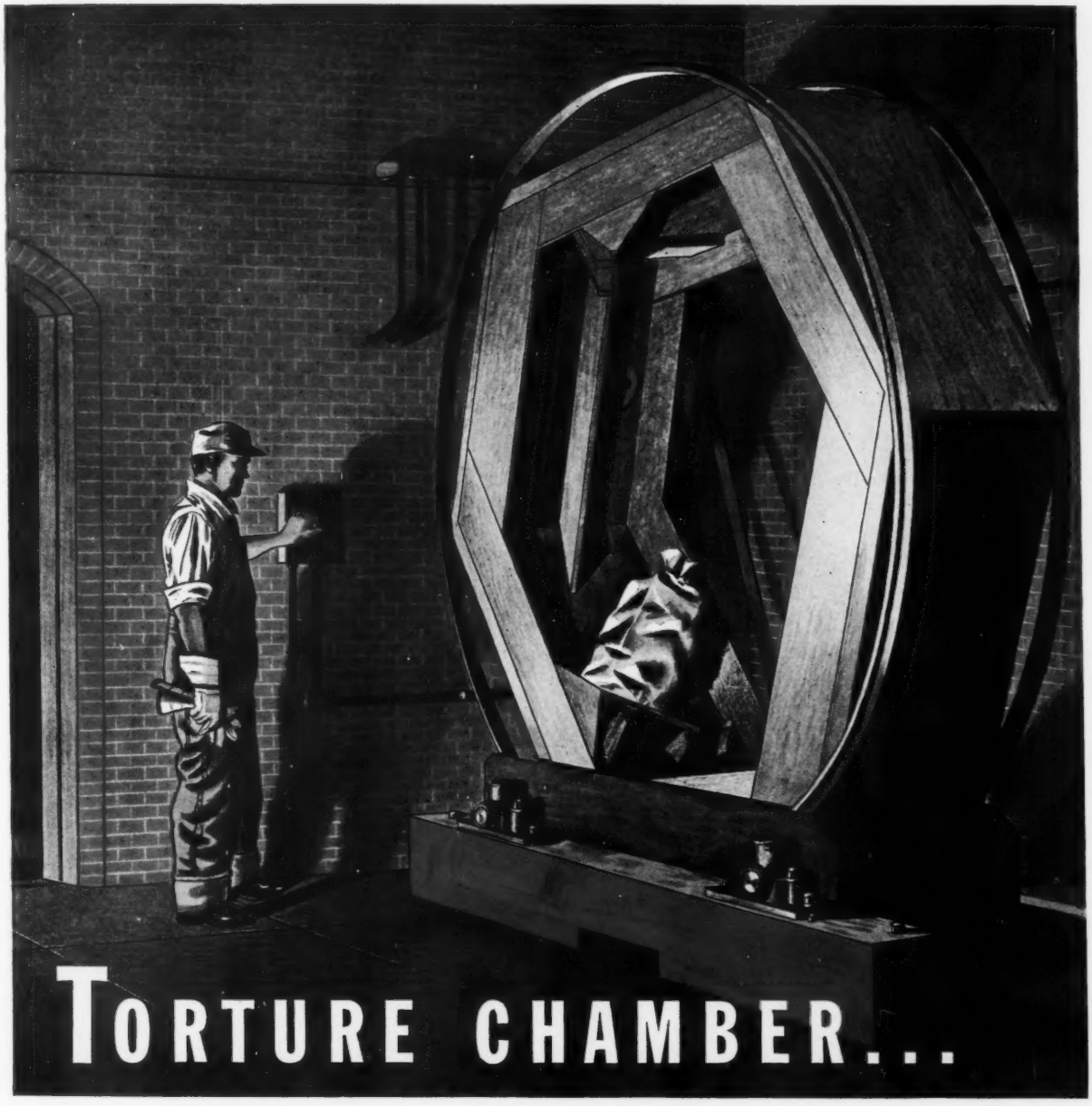
Sav-way INDUSTRIES

4875 EAST EIGHT MILE

DETROIT, MICHIGAN

Representatives throughout U. S. A. and Canada

★



TORTURE CHAMBER...

CAN kraft paper take it on the chin? How rough a handling will the container stand? That's what this Union Bag & Paper Corp. testing drum finds out.

Newly designed kraft paper packages and containers have to prove through this and other tests that they can replace those formerly made of scarce metal, burlap and other materials...materials no longer available for normal commercial use.

Just how well America's abundant kraft paper resources help manufacturers fill this need in our wartime economy is indicated by the fact that now kraft is serving in thousands of different uses!

WITH MULTI-WALL CONSTRUCTION,

Union Bag & Paper Corp. offers highly efficient methods of packaging and shipping agricultural, chemical, fertilizer, food and rock products...affords a decided weight and space-saving advantage.

IN THE FIELD OF WAR PACKAGING,

Union Bag & Paper Corp. is able to make kraft papers resistant to oil, grease and water, super-strong, non-scuff, flavor-sealing, fold-enduring, and eye-appealing...is able to make kraft containers that have one, or ALL of these important advantages.

Whatever your wartime container or packaging problem... no matter how difficult it may seem...consult

UNION BAG & PAPER CORP.

WOOLWORTH BUILDING NEW YORK, N. Y.

KRAFT PAPER—THE SERVICE UNIFORM OF AMERICAN PRODUCTS

Illustration taken from a full-color Duraglas ad appearing in SATURDAY EVENING POST, January 16th, and in COLLIER'S, February 27th.

look into the Future...

with Duraglas

TRADE MARK REG. U. S. PAT. OFF.

CONTAINERS

Duraglas is tomorrow's food package, here today. Its many advantages—for you, for your customers—are appreciated more every day. *They're here to stay!*

Millions of copies of colorful national Duraglas ads this month, and every month, are sending customers to look for foods and household products in containers marked *Duraglas.*

Duraglas containers are attractive—give food a chance to sell itself. This helps solve retail manpower problems, increases customer satisfaction. Shown here is one of many tested easy ways to display glassed foods practically, easily, effectively.

Write for "10 Easy-To-Build Displays", our new book of glassed food displays. It's free!

OWENS-ILLINOIS

GLASS COMPANY TOLEDO, OHIO

DEVELOPERS OF Duraglas CONTAINERS

Ingenuity of the highest order was called for when leading tobacco manufacturers asked Old Dominion to design a package of non-critical materials to replace their pound and half pound metal tobacco cans.

Speed was imperative. The package had to meet some rigid requirements. Among them were: adaptability to filling equipment—moisture retention – strength—appearance—and no change in over-all dimensions.

Though time was short, Old Dominion packaging engineers developed a paper board canister which met every specification PLUS other advantages – saving in weight – revenue stamp application simplified – improved appearance.

Millions of them are being produced – saving enough metal to build 100 tanks for Victory.

If YOU Have A PACKAGING PROBLEM Call On

OLD DOMINION BOX COMPANY

CHARLOTTE, N. C.

PLANTS IN SEVEN SOUTHERN CITIES

Folding Cartons-Set-Up Boxes-Spiral Wound and Corrugated Containers

PACKAGING THAT SAVES CRITICAL MATERIALS FOR THE NATION

BLOOD PLASMA PROTECTS LIVES...

"CEL-O-SEAL" PROTECTS PLASMA!

This is another of the many wartime jobs for "Cel-O-Seal"—a protection job that helps save lives! Here, the function of the "Cel-O-Seal" Cap is to secure the closure firmly in place, and thus it—

- **Seals purity *in***
- **Seals danger *out***

"Cel-O-Seal" cellulose caps and bands are sturdy and tough for war uses on drug and medicinal products. They also provide individuality and attractiveness, often serving as "second labels" for the bottles or jars which wear them.

Plane parts fly on Paper wings!

● Paper and paper products step in to guard plane parts with a moistureproof seal for shipping.

Paper and paper products prove faster, better and cleaner. They deliver vital plane parts for assembly, ready right then and there, for use.

And paper is stepping into other jobs in other businesses, particularly where shortages and priorities have curtailed the use of vital materials.

Paper may solve your problem, although a priority rating may be necessary to clear the way.

There are many unusual jobs that paper will do, many new requirements that paper will meet. And we know a good deal about these things because we have been making paper for many uses— *making a thousand miles of it a day,* in fact. Over many years we have accumulated a rich store of experience and information which will enable us to supply papers for many new and amazing uses when materials are available.

Oxford merchants and Oxford salesmen are ready to take care of your paper needs with Oxford papers.

• • •

Can paper products take the place of scarce materials vital to the war effort? All our research facilities are concentrated on finding the answers.

OXFORD PAPER COMPANY

230 Park Avenue, New York, N. Y.
Mills at Rumford, Maine & West Carrollton, Ohio
Western Sales Office:
35 E. Wacker Drive, Chicago, Ill.

LUMARITH

REG. U. S. PAT. OFF.

Plastics

REPLACE TIN

THE PLASTICS "STORY OF THE YEAR"

LATE in the year 1942, plastics won another victory through intensive cooperation between plastic manufacturer and custom molder. In 1942, Celanese Celluloid Corporation perfected a Lumarith Plastic formula capable of replacing tin for collapsible tubes.

Everybody had expected it to be done some day. And perhaps it was natural to expect the material to be born in the laboratories of the founder of the plastics industry.

The first run of one hundred million tubes being made of Lumarith by Celluplastic Corporation for Colgate, Chesebrough and Ortho Products, will save over two million pounds of pure tin.

With transparent Lumarith sheets and molded materials doing such important jobs as transparent cockpit enclosures, and molded parts for 'planes and gliders, lenses and molded parts for gas masks, there might be many votes for other stories as the Lumarith "story of the year." But the collapsible tube is used by so many people, in and out of uniform, every day, that most people will remember the tube made of Lumarith as the plastics "story of the year."

Celanese Celluloid Corporation, 180 Madison Ave., New York City, a division of Celanese Corporation of America Sole Producer of Celluloid* (cellulose nitrate plastics) . . . Lumarith* (cellulose acetate plastics) . . . Lumarith* E. C. (ethyl cellulose molding materials) . . .
**Trademarks Reg. U. S. Pat. Off.*

The first Name in Plastics

A DIVISION OF CELANESE CORPORATION OF AMERICA

The New Wartime Packaging Catalog

The 1943 Packaging Catalog, now in preparation, will be the first complete war guide for packagers.

Last year, this time, we were worried by shortages, imperiled by priorities and confused about substitutes. Today the situation is much clearer both as to available and unavailable materials. The question of substitutes is constantly being answered with new developments. Strategic materials are being allocated to the really vital applications.

Packagers need a guide to all these changes. Today's packagers must know what substitutes are purchasable, where and from whom. They must know what materials can be used to package which products. They must know about the new substitute closures—who makes them, what good they are. They must know about the conflicting methods of testing packaging materials. They must know about the activities of the leading firms in all branches of packaging.

In short, they must have the 1943 Packaging Catalog. This is the book that will answer all the wartime questions of packagers. It will contain several completely new sections. Much old material will be omitted. The illustrations will depict new war-time packages and displays—for both civilians and the military.

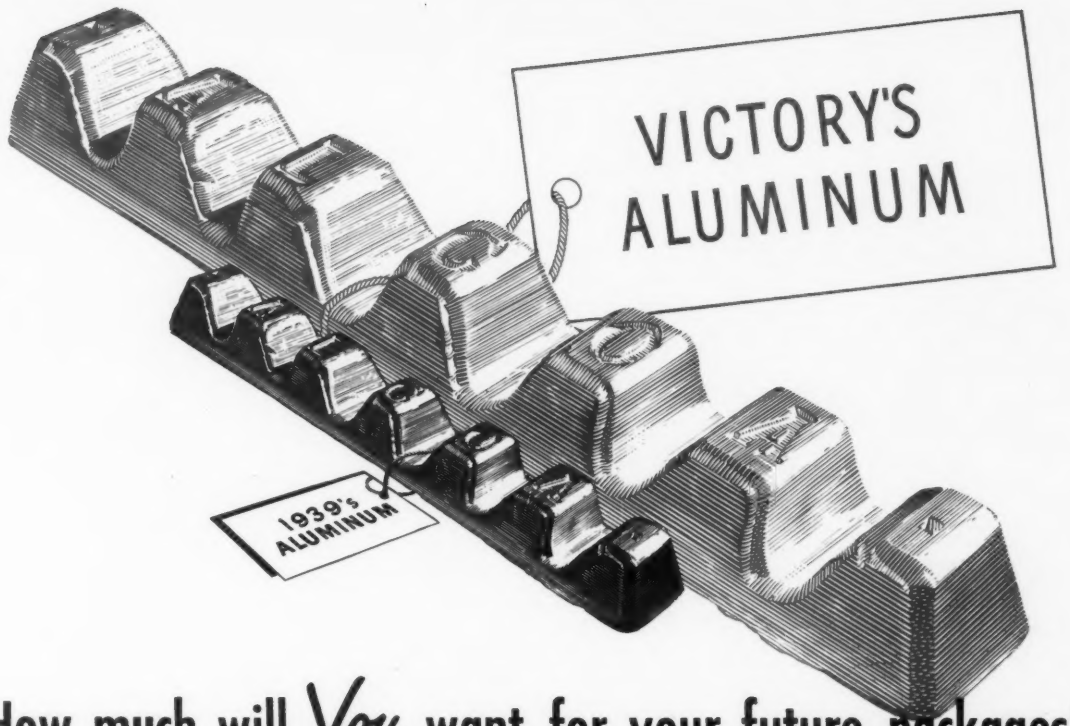
By all of these tokens—and by much more than can be told on one page of description—the 1943 Packaging Catalog will be the indispensable handbook, guidebook and sourcebook of reliable information for the next year. More than any other Packaging Catalog, the new edition will be *used*—you will keep it locked in your desk where you can hold it securely and consult it frequently.

In a time of generally rising prices (and costs) the price of the new Catalog has been cut in half to

$2.50 per copy

1943 PACKAGING CATALOG

122 EAST 42ND STREET NEW YORK CITY



How much will *You* want for your future packages?

This you know: When the shooting is over there will be more Aluminum . . . probably six times more . . . than there was before it started in 1939.

This you should ponder: The price of Aluminum is lower today than it has ever been . . . 25 per cent lower, on ingots, than in 1939. You can toss out all the cost figures you ever used on Aluminum. After the war you will have a fresh new set to stir your interest.

This you should investigate: Aluminum technology is on the march to new horizons. Alcoa's Packaging Laboratory, delving into war supply problems, is discovering new techniques and constructions which promise greatly superior packages, employing Aluminum, for peacetime products. Even though you have never used or thought about Aluminum for protecting your product, someday you may well find a more economical and satisfactory package growing out of this research.

All of which calls for Imagineering. Let your imagination play with these facts: more Aluminum, cheap Aluminum, new Aluminum technology. Engineer them around your product *now*, on the drawing board, and be ready when "someday" comes. Proficient in Imagineering, we would welcome working with you.

ALUMINUM COMPANY OF AMERICA, 2129 Gulf Building, Pittsburgh, Pa.

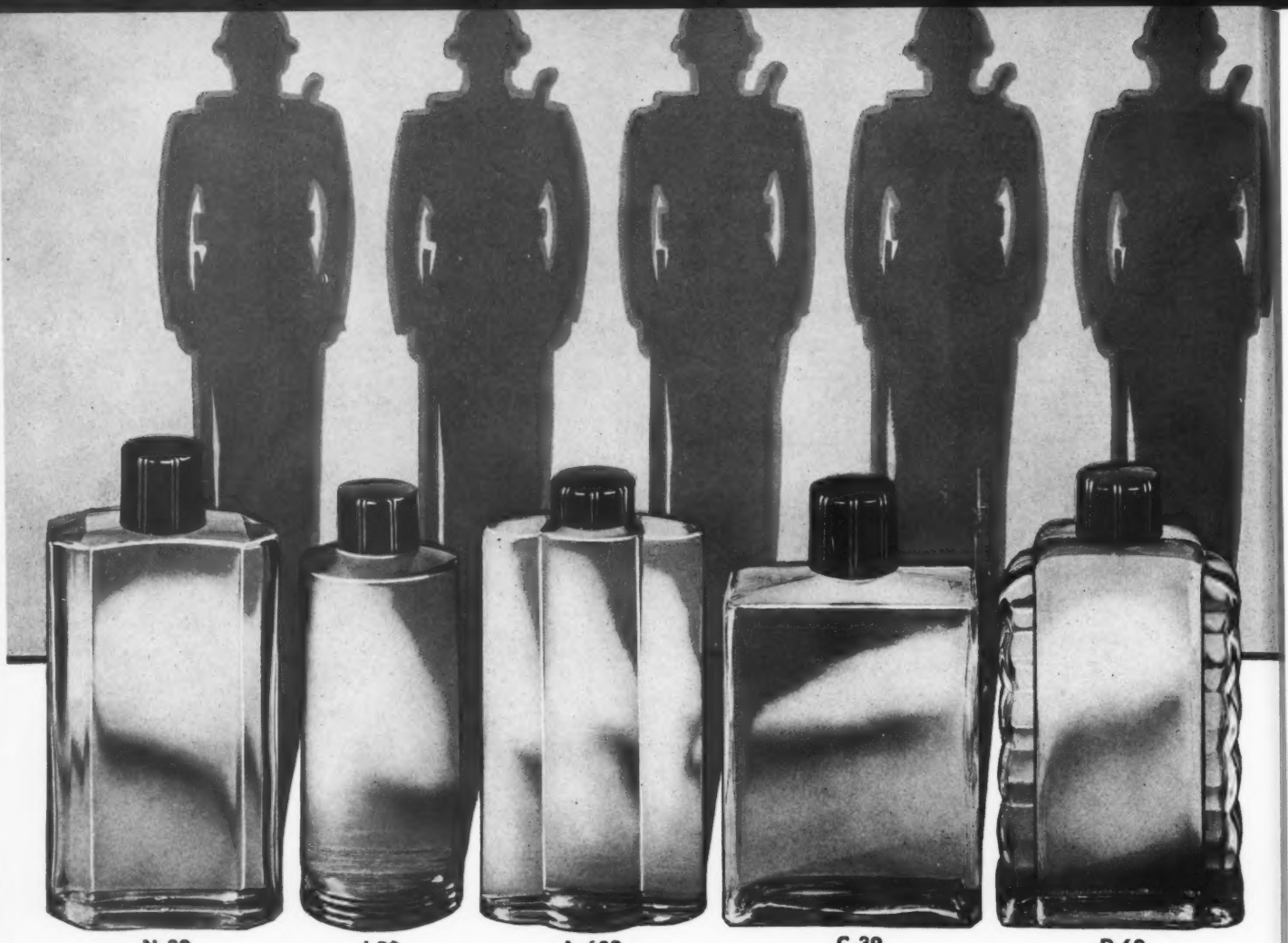
Aluminum is a natural protector

Alone or in combination with other materials it excels in preserving freshness, flavor, volume, aroma and color of products that are sensitive to air, light, heat and gain or loss of moisture.

ALCOA ALUMINUM

Think of ALCOA ALUMINUM

when you think of tomorrow's packages



N-30 J-32 A-682 C-39 D-62

ATTENTION!

Yes sir, these STOCK BOTTLES *certainly do have* ATTENTION VALUE

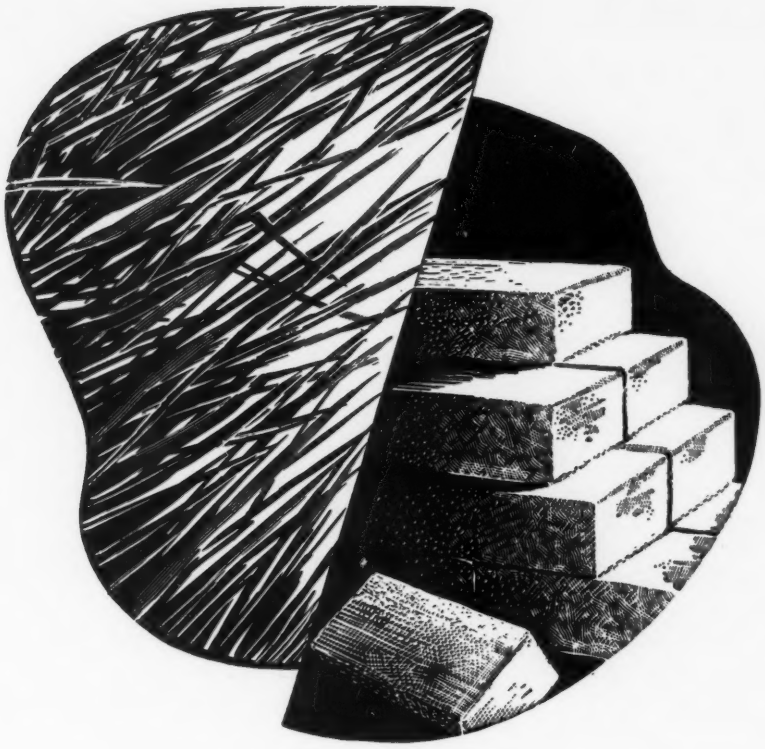
In times like these, it's a wonderful help for you to be able to draw upon Swindell's great assortment of smartly designed stock bottles. The five illustrated are "headliners"--but there are many more to choose from. Write for our catalogue.

Illustrated above:
N-30: ⅛ oz. to 8 oz.
J-32: ½ oz. to 16 oz.
A-682: ⅛ oz. to 4 oz.
C-39: ½ oz. to 16 oz.
D-62: ½ dr. to 8 oz.

SWINDELL BROS.
BALTIMORE, MARYLAND
200 FIFTH AVENUE, NEW YORK
ROBERTO ORTIZ—HAVANA CUBA

When you think of bottles think of

Swindell



MAKING BRICKS WITHOUT STRAW

The old adage said, "You can't make bricks without straw"... but it is being done today ... and so are lots of other things that once seemed impossible. In the packaging industry, a few may have been obliged to set the clock back a little ... but for the great majority, new discoveries have provided "bricks without straw" that are better than ever and that will continue to be used long after the war is over.

Every day these new wartime problems are being encountered ... and every day the Riegel Mills are being called upon to assist in their solution ... with Paper. Our work along such lines is not a sudden desire for "essential" business, but the continuation of many years as a leading producer and specialist in protective packaging.

The sale of a few of our papers is now limited ... on most of them it is not ... but in either event, we believe our technical research and practical experience will enable us to help you. Write us your requirements now.

RIEGEL PAPER CORPORATION

342 MADISON AVENUE • NEW YORK, N. Y.

75

You can use them . . . to make your war packaging more efficient . . . to help reduce damage in transit and thus curtail waste of materials, manpower, machinery and transportation facilities.

"How To Pack War Materials" was "authored" by seventeen manufacturers who found the answers to their new packaging problems in the H & D Package Laboratory. From their experiences you will get ideas which can be readily incorporated in your own corrugated shipping boxes, to save you time and money all along the line.

Published by H & D as a contribution to more efficient, more effective shipping, this new addition to "The Little Packaging Library" is yours for the asking. Send for FREE copies today.

Protect the Product

BETTER SEE H&D AUTHORITY ON PACKAGING

PACKAGING "TEXT-BOOKLETS" FREE

A little time spent in taking H & D's complete "refresher course" in packaging will pay big dividends. Full of helpful information on every phase of distribution, you'll find it a valuable all-year reference. Just say you want a complete set of Little Packaging Library Booklets.

HINDE & DAUCH Executive Offices:
4314 Decatur Street, Sandusky, Ohio

FACTORIES in Baltimore • Boston • Buffalo • Chicago • Cleveland • Detroit • Gloucester, N. J. Hoboken • Kansas City • Lenoir, N. C. • Montreal • Richmond • St. Louis • Sandusky, Ohio • Toronto

GLASS MAKING IS STILL AN ART

...when a designer like this goes to work

JAMES STEELMAN'S job demands a special talent for combining artistic skill with the practical approach. He is a designer, a designer who understands both the possibilities and limitations of his medium—glass.

An ordinary designer probably could not design a completely successful glass package. He would have to know too many things which are not part of his day-to-day experience.

But James Steelman knows these things. He knows how bottles are made, how they're packed and sold, what treatment they may expect in users' hands. So when he carefully plots the shape of a new package, this knowledge guides his pencil just as much as his knowledge of attractive lines. That's one reason why Armstrong's Glass is good-*acting* as well as good-looking. Because of the experience of men like James Steelman, glassmaking is still an art in Armstrong's plants just as it was in the days when all glass was made by hand.

Get the whole story of Armstrong's top-quality glassware by writing for the new free booklet, "Men and Glass." And remember that Armstrong can supply the closure you need, too, from a complete line. Armstrong Cork Company, Glass and Closure Division, 5901 Jackson Street, Lancaster, Pennsylvania. Plants at Millville, New Jersey, and Dunkirk, Indiana.

ARMSTRONG'S GLASS

and **ARMSTRONG'S CLOSURES**

INSIDE NEWS

JANUARY PREPARED BY NATIONAL CAN CORPORATION, NEW YORK, N. Y. 1943

Two New Methods for Processing Fish

Save Time, Labor and Yield Superior Canned Product

Two methods of processing fish before canning, which have many advantages over present methods of production, have been developed through experimental work undertaken by the Fisheries Research Board of Canada through its Pacific Coast stations. One of the new methods involves smoking, the other steaming.

The product prepared by smoking had a better appearance than the usual raw pack, each fish being entirely separate and firm enough to be lifted out of the can in its entirety. In the smoking procedure, fresh herring were scaled, dressed and washed, then they were brined in saturated brine for 15 minutes. After being spread on ½-inch mesh wire trays, the fish were placed in a smokehouse previously heated to 150 degrees F. and were smoked for 30 minutes, using wood shavings and sawdust. After smoking, the fish was sufficiently dried so that it could be handled and packed in cans with ease. The next step was to pack the product in 1-lb. oval or tall cans with about 2 ounces of tomato puree added to each can. The cans were then steamed for 12 minutes with the lids merely resting on top of the cans and then the containers were closed and the product cooked for 90 minutes at 250 degrees F.

The steaming technique preparatory to canning produced a pack with an attractive appearance. The fish were firm and retained their shape even when lifted out of the can, and the flavor and odor were very good. In steam-packing, fresh herring were scaled, dressed and spread on wire screens and steamed from 5 to 10 minutes in a closed retort. The fish were then placed in the smokehouse (which in this case was operated as a drying unit) and dried in a current of warm air for 30 minutes. They were then packed in tin cans and cooked as was done with the smoked pack.

See Progress Report No. 52, Pacific Fisheries Experimental Station, Vancouver, B.C., of the Fisheries Research Board of Canada. (250)

Argentina to Export Yerba Mate to U. S.

South American interests in Argentina have sold to a United States firm 5,000 tons of yerba mate for delivery before the end of 1942. The sale has excited considerable interest in the future export possibilities of this herb. The government of Argentina has issued a decree authorizing the intensification of production of mate. As a result of exhaustive laboratory tests made during the last year in the United States, the mate will be submitted to large-scale processing for the extraction of valuable chemical substances, especially chlorophyl. The present local production of mate is estimated at 72,000 tons annually. (251)

* * * * *

To prevent scurvy from Vitamin C deficiency in war areas, over 500,000 gallons of concentrated fruit juice will be shipped abroad in individual containers. When concentrated the syrup holds 85% of the original vitamin content.

AMA Orders First Dehydrated Pork for Overseas Shipment

The U. S. Department of Agriculture reveals that the Agricultural Marketing Administration has awarded its first contract for dehydrated pork for shipment overseas. The AMA buys all food for Lend-Lease shipment. The new product, which never has been on the commercial market, is made of pre-cooked, fresh, extremely lean pork. Granular in shape, its color and texture are similar to brown sugar.

Dehydrated pork has about one-third the volume of the original boneless meat and weighs about one-fourth as much. Large-scale drying and dehydration of other farm products for Lend-Lease shipment—such as dairy products, vegetables, fruits and eggs—already has saved thousands of tons of shipping space in getting urgently needed food products to the allied nations.

Although in the experimental stage when the war began, meat dehydration has made rapid strides under the impetus of wartime needs for concentrated foods. Large scale production has been encouraged by government orders and it is expected that by early next year at least 10 processors, mainly in the mid-west, will be producing the concentrated pork. It is now being substituted for beef, as there is a greater supply of pork generally available. (252)

* * * * *

Glue factories are having a race to keep up with the increased demand caused by substituting wood for metal and restricting the manufacture of nails.

* * * * *

Venezuela can supply upward of a million pounds of silk cocoons a year. Mulberry trees, diet of silk worms, flourish there.

NATIONAL CAN

PLANTS: NEW YORK • BOSTON • BALTIMORE • CHICAGO • HAMILTON, OHIO • FORT WAYNE, INDIANA

New Process Yields Alcohol From Wastes

Smokeless powder and synthetic rubber can be made cheaply and abundantly using alcohol from watery wastes now poured down the sewer. Waste liquors from paper mills and other industrial plants, as well as sawdust, straw, cornstalks and other agricultural wastes, contain sugars capable of being fermented into alcohol. But the solutions are so thin and watery that the fuel needed for distillation is worth more than the alcohol that could be obtained.

Key to the riddle is fusel oil. Fusel oil dissolves alcohol but will not mix with water. So it is put to work getting the alcohol out of the watery wastes. Subsequently a chemical divorce between the alcohol and the fusel oil is arranged. A similar use of fusel oil can be made in getting acetone and other valuable industrial solvents out of solutions until now considered too thin to be profitably worked. (253)

New Toxic Agent For Insect Sprays

Thanite, a remarkable new toxic agent for insect sprays, is relieving the insecticide manufacturer from dependence upon foreign sources of supply. The usual imported toxic ingredients — pyrethrum, derris, cube and others—are becoming almost impossible to obtain. Insecticides are helping to win the war by enabling the farmer to get better production. They are also instrumental in the control of disease. Thanite is being produced from domestic raw materials available in quantity. In the past season it was just getting into production. Next year it will be used extensively. Chemically it is known as secondary terpene-alcohol thiocyanyl acetate and is a stable compound. (254)

Free Room and Board For War Workers

As part of its wartime speed-up program, a large canning company in New Jersey has made special arrangements for the lodging, feeding and transportation of the extra workers employed. Free lunches for all workers are served in the company cafeterias and other meals are sold at minimum prices in the camp mess hall. Some of the workers get free lodging in a former CCC camp six miles from the plant, with free transportation between the camp and the plant. (255)

* * * * *

Barrels are being constructed of plywood in Germany, according to reports reaching the Department of Commerce. The walls of the barrel are wound in puttee fashion in three overlapping layers and opposite directions over a metal core, after which strips of veneer treated with synthetic resin are applied.

Technical Topics

CELLULOSE—Several species of native and imported bamboo grow along the Gulf coast of Texas and Louisiana. No plant can produce as much cellulose per acre as certain species of bamboo. (256)

FUELS—A truck, fitted with a gas producer originally designed for anthracite, has been running on sawdust in Great Britain. Diesel trucks in tests have shown good performance using vegetable oils grown in West Africa—peanut, cottonseed and palm oil. (257)

PECAN SHELLS, long of no industrial value, are being used in the production of activated charcoal as a filler for gas masks. Many thousands of pounds will be processed in a 95,000 square foot factory reconditioned for this work. (258)

FISH LIVER OILS—Uruguay's fish industry reports several fish with liver oil far greater in vitamin A content than cod, required by international standards to have at least 800 units of vitamin A per gram. Among these are hake, averaging 18,000 units per gram, corvina, 26,000 units per gram, bagre from 90,000 to 100,000 units per gram. (259)

BITUMEN EMULSIONS, in which soap acts as an emulsifying agent, are being employed in Britain in blacking-out conspicuous surfaces, such as roadways. The dilute bitumen emulsion is applied to the roadway and then dusted with coal. A cheap and durable blackening effect is said to result. (260)

ALGIN is being investigated in Eire in connection with the making of waterproofing agents and plastic materials. Tests have also proved it to be a satisfactory substitute for sago flour in the sizing of twine. Its possibilities as a starch substitute are being studied. (261)

ROSIN usually free from impurities and clean and bright in appearance is claimed to be easily produced by a process described in a recent U. S. patent assigned to the Secretary of Agriculture. Basis of the process is the drying of the crude oleoresin by the addition of turpentine near the end of the normal distillation period, so that the whole mass may be readily filtered through various clarifying media, including paper. (262)

SODIUM METASILICATE and an alkyl sulphonate are combined in a new preparation suggested for cleaning bright steel surfaces difficult to clean. The sulphonate reduces the surface tension and assists the metasilicate solution in removing the grease film after two seconds contact. (263)

WAX BLEND—Carnauba wax may be substituted with a blend of beeswax, shellac wax, and sal dammar, it is suggested by an Indian Forest Research Institute. The compound is a blend of eighty-five parts of shellac wax, ten parts of beeswax, and five parts of finely ground sal dammar. (264)

SULPHURIC ACID has been found effective in increasing the gum flow of pine trees employed for naval stores production. Tests on slash pine showed an average increase of 25 percent in the gum flow when a 40 percent solution of sulphuric acid was applied directly to fresh streaks immediately after chipping. More than 100 possible stimulants were investigated in the tests, but sulphuric acid gave the best results. (265)

INVISIBLE INSECTICIDE—A new invisible insecticide paint is being marketed for use on windows and door screens in army cantonments, and for the hotel and restaurant trade. (266)

ACID DETERGENTS are opening a new era in food sanitation. The major objections to the use of acid detergents in the past have been their inherent corrosiveness, poor penetrating and peptizing properties, and general lack of other cleaning characteristics. These drawbacks have now been largely overcome. (267)

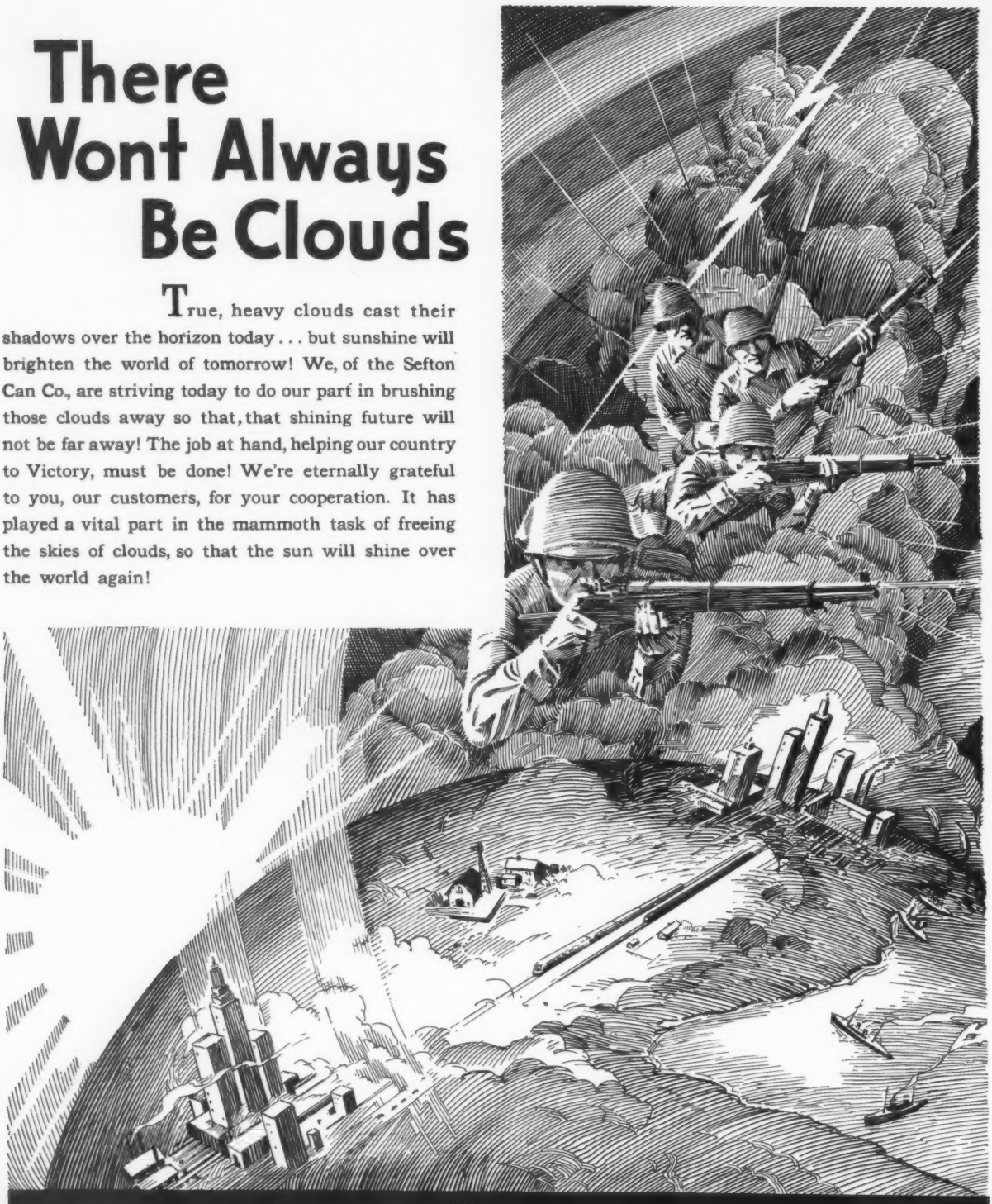
CITRONELLA — Geraniol and citronellal separation from citronella oil by an improved method is claimed in a recent British patent. The procedure comprises mixing the essential oil with reactive amine and thus causing the reactive aldehyde to form a condensation product of relatively high boiling point. The volatile noncarbonyl compound is then separated by distillation. (268)

Every effort will be made to furnish additional information on these articles. Where such information is not obtainable, we will refer inquirers to the original source of the article. Write to National Can Corp., 110 E. 42nd Street, New York City. Please mention the number at end of article—also name of the magazine you saw it in.

(Advertisement)

There Wont Always Be Clouds

True, heavy clouds cast their shadows over the horizon today . . . but sunshine will brighten the world of tomorrow! We, of the Sefton Can Co., are striving today to do our part in brushing those clouds away so that, that shining future will not be far away! The job at hand, helping our country to Victory, must be done! We're eternally grateful to you, our customers, for your cooperation. It has played a vital part in the mammoth task of freeing the skies of clouds, so that the sun will shine over the world again!



SEFTON FIBRE CAN COMPANY

Plants — St. Louis, Missouri • New Orleans, Louisiana

DISTRICT OFFICES: Los Angeles, San Francisco, Denver, Tampa, Chicago, Des Moines, New Orleans, Boston, Detroit, Kansas City, St Paul, Omaha, New York, Cincinnati, Cleveland, Oklahoma City, Pittsburgh, Memphis, Nashville, Dallas, Houston, Salt Lake City, Seattle

Anchor Hocking makes a complete line of Pharmaceutical Ware—blakes, narrow and wide mouth rounds, ovals, round cornered squares, pharmaceutical packers, dropper ovals and many other standard styles in both crystal and amber, as well as opal jars.

In addition, Anchor Hocking makes a wide variety of metal and molded closures.

So no matter what you pack—solid, semi-solid, powder or liquid, effervescent or volatile; or how you pack it; no matter where its final destination may be, or when—there is an Anchor Hocking container and closure to most completely answer your diverse requirements . . . subject to government regulations, of course.

One of Anchor Hocking's ablest men, Dave Corin of the New York office, has been with the company 30 years.

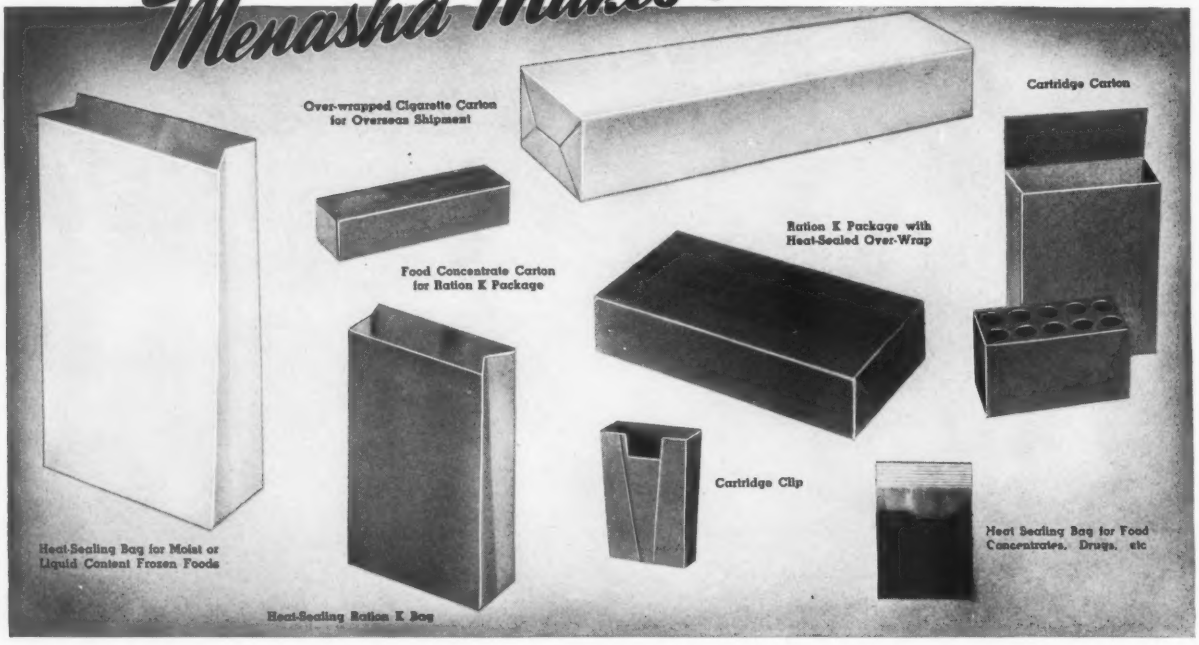
ANCHOR HOCKING

GLASS & CAPS

ANCHOR HOCKING GLASS CORPORATION · LANCASTER, OHIO

CARTONS BAGS OVERWRAPS

Menasha Makes All Three


Over-wrapped Cigarette Carton for Overseas Shipment
Cartridge Carton
Ration K Package with Heat-Sealed Over-Wrap
Food Concentrate Carton for Ration K Package
Cartridge Clip
Heat-Sealing Bag for Moist or Liquid Content Frozen Foods
Heat-Sealing Ration K Bag
Heat Sealing Bag for Food Concentrates, Drugs, etc

Does your problem involve a Carton? Bag? Over-wrap? Does it involve a combination of two or of all three types? Here at Menasha our wartime service to packagers embraces all these fields.

CARTONS. Special paperboards, special construction, and above all, special protection — these are factors in choosing cartons for wartime packaging. Our production today includes cartons for cartridges, cartridge clips, dehydrated eggs and other dried foods, frozen foods, Ration K and other direct-war products.

BAGS. Menasha pioneered the completely protective heat-sealed bag. Today our special bag machinery is producing protective bags for a variety of war products — Ration K, dehydrated eggs and other dried foods, frozen foods, concentrates, powders and many other vital products.

OVER-WRAPS. Today's shipping requirements demand the protection of over-wraps. Here again Menasha's long experience is an asset to producers seeking the answer to war packaging. Our production includes over-wraps for tobaccos and cigarettes for overseas, dehydrated eggs and other dried foods, Ration K, frozen foods and many another hard-to-keep wartime product.

May we send your copy of the New Booklet "WAR-TIME PACKAGING"?

WAR PRODUCTS DIVISION

THE MENASHA PRODUCTS CO. MENASHA, WISCONSIN

Division of Marathon Paper Mills Co.

MENASHA

Menasha PRODUCTS

A WORD ABOUT THE FUTURE: *Research, design and manufacturing processes for war production have taught us many things. Be sure that they will be applied to the manufacture of better, smarter and more efficient containers when victory permits.*

CANNERS' CONVENTION 1943!

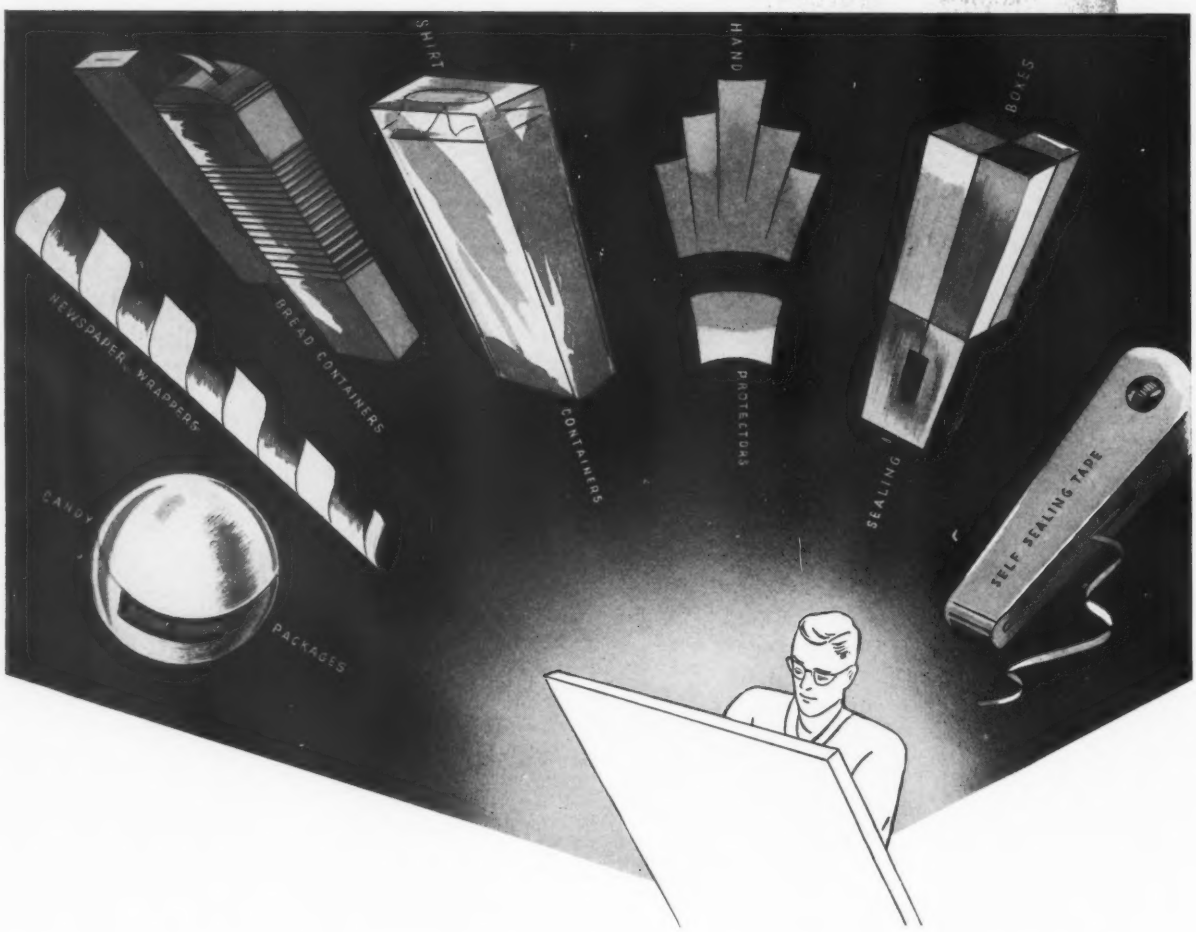
There are no meetings in large convention halls. There are no exhibits of new containers to tempt the packer and the buyer.

No—this year the meeting is a meeting of minds. Minds that have crystallized the standardization plans discussed a year ago.

Hazel-Atlas feels privileged to work with packers in supplying standardized containers until the peace is won.

HAZEL-ATLAS GLASS COMPANY

WHEELING, W. VA.

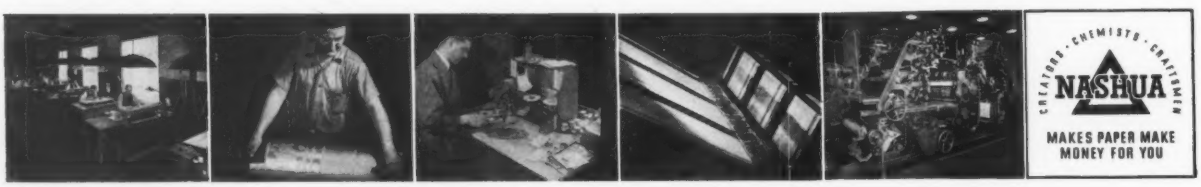


YOU CAN COUNT on NASHUA . . . TODAY AND TOMORROW

This advertisement is no bid for business, no offer to supply the unavailable or to accomplish the impossible. . . . It is a reminder that war is a passing thing and that after the war there will come a resumption of business not as it was but with accelerated development bringing great changes in every product, industry and method. . . . Modern packaging as we now know it may not be modern in that new era. . . . We are thinking about modern packaging of tomorrow. You are thinking about it and your competitors are thinking about it. . . . Your source of supply is going to be very important when *thinking* changes to *action*. Nashua has always been a dependable source of supply. Organization, experience and equipment have combined to make that statement true — and to keep it true — yesterday, today and tomorrow.

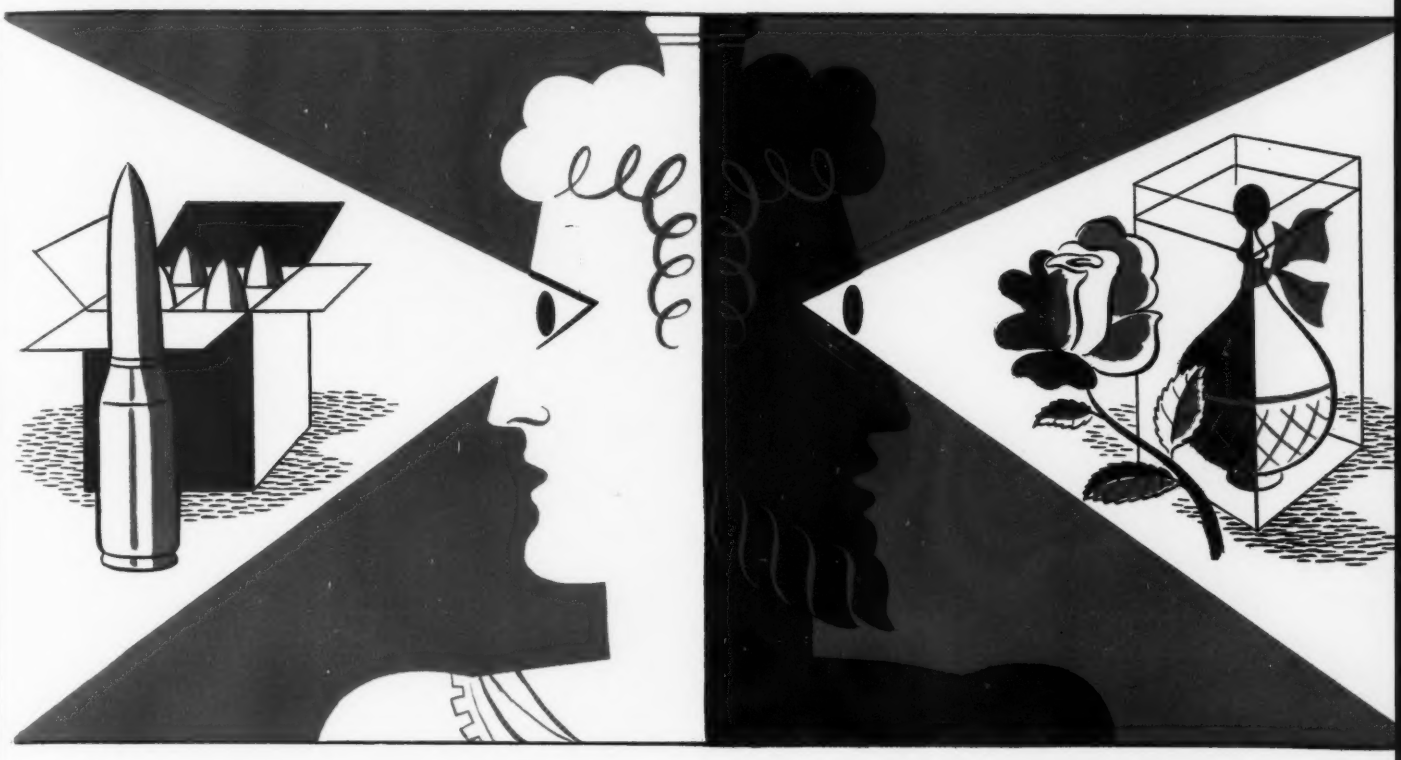
Basically we are paper convertors — coating, gumming, impregnating, laminating, printing, waxing. Our base material is paper of many types, including transparent printed Cellophane.

NASHUA GUMMED AND COATED PAPER COMPANY, NASHUA, NEW HAMPSHIRE



MODERN PACKAGING

JANUARY 1943 VOLUME 16 NUMBER 5



LOOK IN BOTH DIRECTIONS

Americans started 1942 before they had a chance to recover from the greatest shock in their history. American possessions had been attacked. Overnight we were in a war—a war that may be long and grim.

It has touched the very roots of our way of living—the family ties we cherish, the money we earn, the food we eat, the houses we live in and the way we travel.

Few realized a little more than a year ago that innocent little metal cans on a grocer's shelf had anything to do with the steel that goes into ships and tanks, or that a little piece of molded plastic for a bottle cap was needed to make planes.

Those things have had to be learned quickly. Packaging industry within the space of a few months had to learn to do without practically all its old reliables—tin, steel, aluminum, rubber, plastics. This meant fewer tin cans, highly restricted use of blackplate containers, highly restricted use of metal collapsible tubes, no more metal foil, no more rigid transparent materials, no more cellophane except for essentials, no more phenol for closures, practically no rubber gaskets for hot process food, no more protective rubber hydrochloride sheeting.

Just two materials were left in any quantity—glass and paper—and these not without strings tied to them. Glass container production, after all, has its limits and worse still, no glass container is any good without a closure of metal or other material, most of it critical. The paper situation was aggravated by an unfortunate shortage scare which caused over-production and over-buying. That's over, but shortage of labor and transportation again cloud the paper situation.

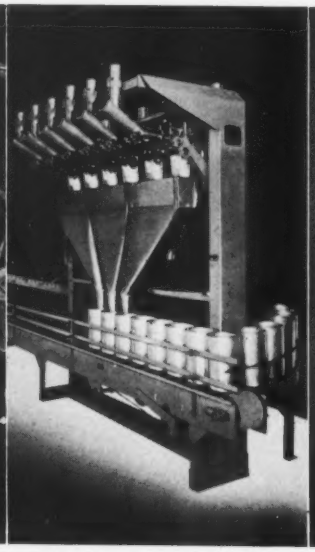
A new year is here. The same shortages are ahead—and are likely to get worse. This sounds like dire pessimism. It would be except for the way these seemingly insurmountable obstacles are being overcome. That is why we say, "Look in both directions." Look at the past year and see what has happened. Look at the future squarely.

It is not going to be easy. Take as an example the paper closure for Noxema, described in this issue. This company has been working on it for a year. When they first began asking for paper closures, they were greeted with only surprise and dismay that any company should really consider such a thing. Only last summer, it was thought a continuous thread cap of paper was impractical. Now it is commercially feasible. True, the supplier who makes these caps has all the orders he can handle, but there are going to be other caps before long—not only of paper, but perhaps molded from compounds derived from agricultural products.

On the next two pages you will see a picture story of the milestones of packaging in 1942. On subsequent pages you will read example after example of how those in packaging and allied fields are solving their war problems—proud of achievements forced on them by the emergency—and ready, no matter what happens, to tackle the future.

A YEAR OF WAR PACKAGING

Materials go to war



Machines load shells

Paper doubles for metal

Struggle for weatherproof cases

Rations for the men who fight

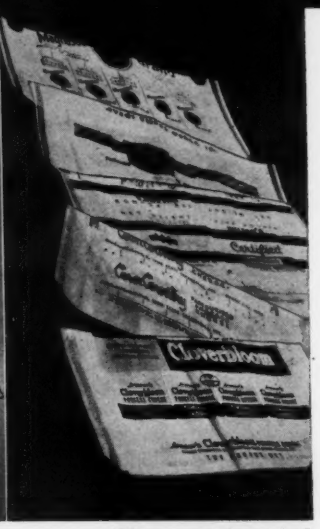
Search for substitutes

Paper salvage campaigns

Metal tube salvage

Paper compacts, lipsticks

To market without cellophane



Cheese without foil

More farewells to foil

Glass but no closures

Crown cap casualty

Above. Plastic tube is born. *Below.* The swing to paper packages for aspirin

Answer to M-81—paper, laminated, coated, with liners, greaseproof and moistureproof

Armstrong Cork Co. received its E pennant at ceremonies, November 30.

Suppliers Tackle Shortages

Suppliers and fabricators of packaging materials had a three-fold job during 1942 and will continue along the same lines in 1943. First, many of them are actually making war matériel—munitions, plane parts, precision instruments—items they never dreamed of making a year ago. Second, many are up to half their production capacity on containers and packages for military supplies. Third, they are helping to move civilian goods on the home front by making containers, closures and wrappings of non-critical materials.

Several are proud holders of the Army and Navy E. Armstrong Cork Co., which received this meritorious service award November 30, started its war production program in 1939. Since that time, a large percentage of its manufacturing capacity has been converted to the making of shells of various calibers, large structural plane parts, bomb racks, camouflage and concealment material, incendiary bombs, armor piercing shot, cartridge cases, parts for fuses and detonators, fireproof army duck, flare bases and parts for tanks, guns, recoil mounts and gear cases. Normally this company, known in the packaging industry for its molded caps, crown closures and glass containers, also makes linoleum, insulating fire brick, accoustical materials and insulating materials.

"We can't give you any stories of new and startling packages—there ain't none around here these days," wrote G. K. Scribner of Boonton Molding Co., another E pennant winner. "Raw materials that plastic molders normally use are ringed about with barbed wire restrictions that force their use into strictly service lines and those lines are not open for public discussion.

"We, ourselves, have shifted over to making funny-looking parts you never will see anywhere, but which are mighty helpful five miles up in the air or out on the blazing desert sands doing their bit to make some gadget work better.

"We got the pennant just because we jumped more quickly. We are naturally proud of it, but we are also proud of the recognition given to the molding trade in general by this action. They are all doing an outstanding job and if their former customers don't find them hanging round the same old corners looking for business, it's because they are in this fight up to their necks."

The war has taught industry new tricks with cellulose tape, much of which has been diverted to military uses for the duration, according to Minnesota Mining & Mfg. Co. "Scotch" tape is being used for holding layers of glue and

Cellulose tape is being used on the wooden hulls of PT boats.

insulating material between the wooden hulls of PT boats. It is sealing vents, body openings and brake drums on tanks, trucks, engines and airplanes to protect against corrosion during shipment. It is used for weatherproof sealing and identification by color of shell cartons, for color identification of fuse parts and powder trays in ordnance plants, for holding plastic material in position on curved dies during molding and as an insulator against chipping when the completed sections are bolted in position, for holding long rows of rivets in place before hammer is used to speed production, for identification (when printed) of hundreds of wires that go into planes and ships, for marking control cables by color in planes for speeding manufacture and repair, for holding filter paper around charcoal in gas masks.

The 175 research workers of Minnesota Mining developed a special airtight, waterproof, mustard-gas-proof tape demanded by the army to safeguard contents of blood plasma cartons, first aid containers and certain types of rations. They even made special dispensing equipment for this purpose.

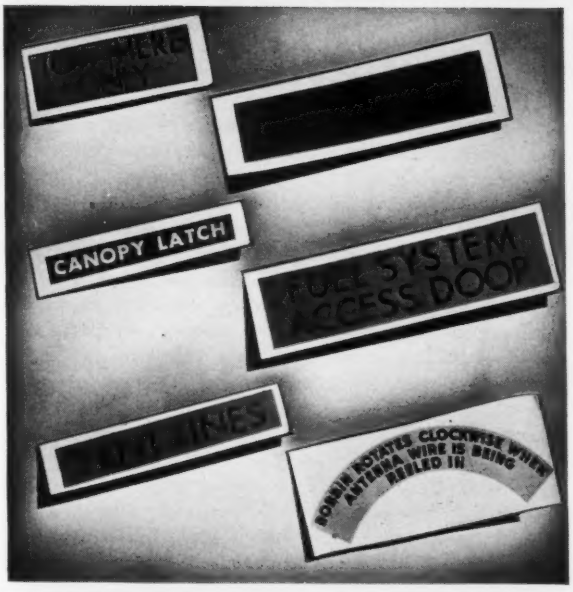
A decalcomania has become something more than a decorative feature. Alphonse Bihr, vice-president of Palm, Fechteler & Co., told about fluorescent transfers his company makes for instrument panels to "keep 'em flying at night," about decals impervious to the action of water, oil and gasoline to mark the various mechanical features of plants and to furnish instructions to operators. His company also makes a huge "transfer" which puts the air force insignia on planes.

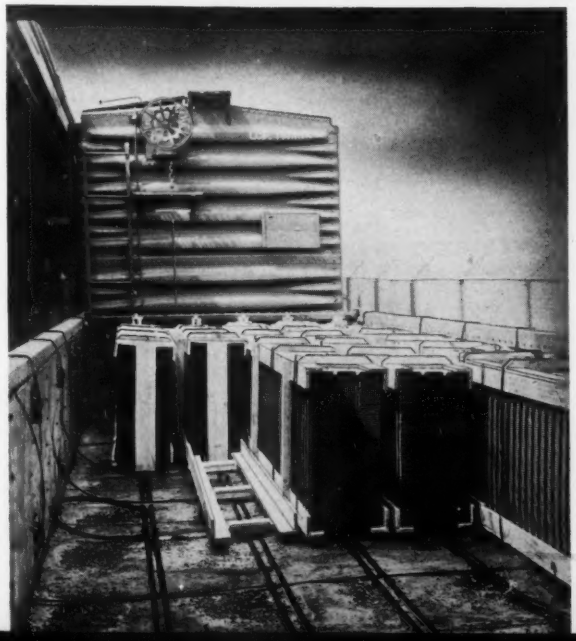
Union Steel Products Co., whose work used to be making metal displays for merchandise at the point of sale, now is using the same metal for wire racks and baskets to handle shells and gun parts at the point of manufacture. These containers are being used as carriers and conveyor parts for handling all kinds of war manufactures in ammunition and motor plants. Huge heat treating baskets, made of nickel-chromium alloys that will stand temperatures from 1200 to 2200° F. and that weigh hundreds of pounds, are used in an aluminum pit furnace for heat treating super-charger plane motor parts.

A metal shortage for display units, which once threatened to keep machinery idle in this business, has been the cause of developing an entirely different line to help speed the war effort. At the same time, the company said, the many talking points of wire as a display material, such as greater product visibility, strength without bulk, versatility, are the same reasons wire is so valuable in the manufacture of handling baskets, carriers and parts. Wire parts have helped many large manufacturers to convert existing conveyor systems to war production with minimum cost and time.

The efficacy of steel strapping for war materiel has been mentioned previously in this publication. It has a duty to perform in shipping military goods and foods to the front that has not been performed more efficiently by any other method. Some of the current important uses are reported by Acme Steel Co. "Bound to get there" is the company's slogan and steel strapping is helping to make shipments of emergency landing field mats, for easy-to-handle packs of trench mortars and for stitching fibre egg cases.

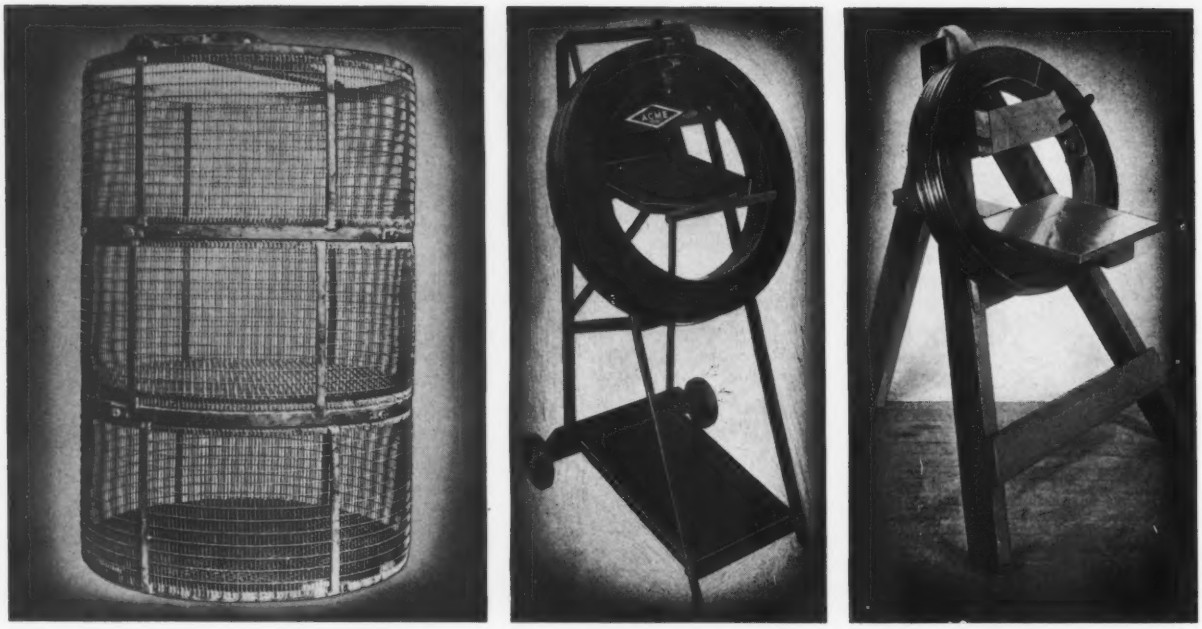
Another interesting slant on this company is its awareness of the urgent need to conserve steel in all places where an alternate material can be used. The company is now making dis-





Top. Huge decals for insignia on plane wings. Center. Decals for instructions on instrument panels, doors, etc. Bottom. Wire strapping for shipping landing-field mats.

(*Page 39*)



Left. Metal for displays at the point of sale is now going into huge baskets at the point of manufacture of war materials. Center and right. Steel strapping dispensers formerly of metal are now being made of wood to save steel.

pensing equipment for its strapping of wood. "Although the wood products are not so suitable as the steel ones," they said, "the wood units will undoubtedly be helpful until such time as a more ample supply of steel is available."

National Folding Box Co. reported two outstanding developments for the year. First are the radio tube trays, clip gangs and individual tube boxes made for R.C.A. and described in September Modern Packaging.

"In no other war have adequate communications been as important as in the present global one. Since the radio tube represents the heart of all modern communications, heretofore unheard of numbers of radio tubes are essential to provide the 'eyes and ears' of the armed forces," wrote W. F. Deveneau of National Folding Box.

"Faced with this gigantic production problem, radio tube manufacturers completely revolutionized their factory methods. After painstaking research, they found an entirely new method of packaging radio tubes in paper boxes instead of metal trays has made tremendous savings in materials, factory and shipping space, handling and warehousing. Furthermore, these paperboard packages have so reduced the time formerly required for making and testing that millions of additional radio tubes are now shipped to the four corners of the world" he wrote.

The second achievement of this company is its development of paperboard boxes for smoking tobacco and cigarettes. The company stated that these paper packages release more than 10,000 tons of metal formerly used for packaging smoking tobacco. Paper boxes for previously used 50-unit cigarette tins have released 20,000 more tons of metal for war and have reduced shipping weight 70 per cent—an important saving to the country's transportation system.

When you think of pottery containers, you are apt to think in terms of decorative containers like cookie jars, cheese jars, cosmetic jars. But that is not the big side of the pottery story. E. H. Leon, Robinson Clay Product Co., wrote that 40 per cent of his company's production is in war work, making stoneware crocks in sizes from 1 qt. to 50 gals.—even 60 gals. Some of these have rubber faucets that fit to them and they are used in army camps for laundry and bleach jars. Also since the metal shortage, the production of bean pots has increased fourfold. The shortage of canned baked beans has caused an upswing in home baked beans. Last year the company's production of bean pots was 60,000. This year, they are some 70,000 bean pots behind orders and are curtailing their luxury lines to take care of orders which they feel are more important. They are also making 8,000 bean pots for the Navy. They have had to turn down large orders for cookie jars, as well as many orders for other luxury packaging due to labor shortages, shortage of tools, and lack of production facilities. They believe luxury pottery items will be further curtailed by government order, which would cut out about 50 per cent of the items the company is now making. Another difficulty in making decorative pottery is that of getting raw material glazes, all of which are derived from metals such as lead, zinc, cobalt and others now needed in war work. Potters are working on substitute glazes, but it takes time to develop them.

In the civilian packaging field, Celanese Celluloid Corp. was proud that its cellulose acetate was used in the making of the first plastic collapsible tubes to be placed on the market in test areas. These collapsible tubes were made by Celluplastic Corp. and represent the first major attempt towards large-scale production of a plastic tube used for toothpaste and ointments.

Celanese-Celluloid Co.'s material is also being used for laminations in combination with paperboard, fibre and asphalt for "waterproof, moisture-proof and grease-proof" containers to take the place of metal. Their molding powder is used for the top and bottom of an injection molded box used as a Naval Aircraft first-aid package. Commandos are being trained for invasion in gliders, which have transparent windows of cellulose acetate. The lenses of gas masks are also made of this material, as is a transparent container made

by Walter P. Miller Co. for packaging spare parts used by the Marine Corps.

Mono Service Co. believes their most outstanding item for the year is their safety glue pot. This is a paper container. They started it last June and it has grown to a sizable business. This glue pot is used in the aircraft industry where time is a very important factor in the use of special glues. The safety feature is a series of colored bands which designate the work shift in which each batch of glue is to be used.

Traver Corp. wrote about the partitions they are making for insertion into boxes for packaging small arms, ammunition and bomb parts. This is now a large part of their production.

Old Dominion Box Co. is another company which has come to the rescue of tobacco companies who must abandon metal packaging. Although these boxes are not yet on the market, "It is permissible to divulge at this time that orders we have in the house run into millions of 1/2 lb. and 1 lb. sizes. The amount of steel replaced for one account alone will amount to over 1,500 tons. This amount will make approximately 50 General Grant tanks," they wrote.

Sealright Co. has been one of the year's leaders in the development of paper containers laminated with cellophane on the outside surface and lined with cellophane on the inside. The overlapping inner seal of cellophane permits it to be used as a package for many products. Among well-known brands packaged in this container are Dexo shortening and Sir Walter Raleigh smoking tobacco.

Stecher-Traung Lithograph Corp. reported as one of their outstanding developments three folding cartons to take the place of metal typewriter ribbon containers.

Randolph Paper Box Co.'s achievement of the year is really a revival—a revival of a grease-proof box they made back in 1876 before metal boxes were produced on a large scale—a revival of a box used widely in army medical depots in the first World War. Protective feature is a grease-impervious compound which coats the inside and seals the seams. It is effective for grease-base products which do not have more than 5 per cent moisture content.

Adhesive manufacturers have had a trying year, developing satisfactory adhesives despite shortages, allocations and restrictions on all types of materials formerly used. This has been doubly difficult in view of the demands on adhesives for war jobs.

National Adhesives wrote: "Naturally we place the greatest significance in our ability to offer commercial solutions to difficult adhesive problems submitted by essential war industries—chiefly in the field of protective packaging, as well as on confidential work at arsenals and for other war agencies.

"The adhesive problems arising out of the development of special paper containers to replace tin, of waterproof bags for lend-lease, of better weatherproof solid fibre export cases for food stuffs and other supplies, of waterproof containers for field rations and medical supplies have occupied the greater part of our time.

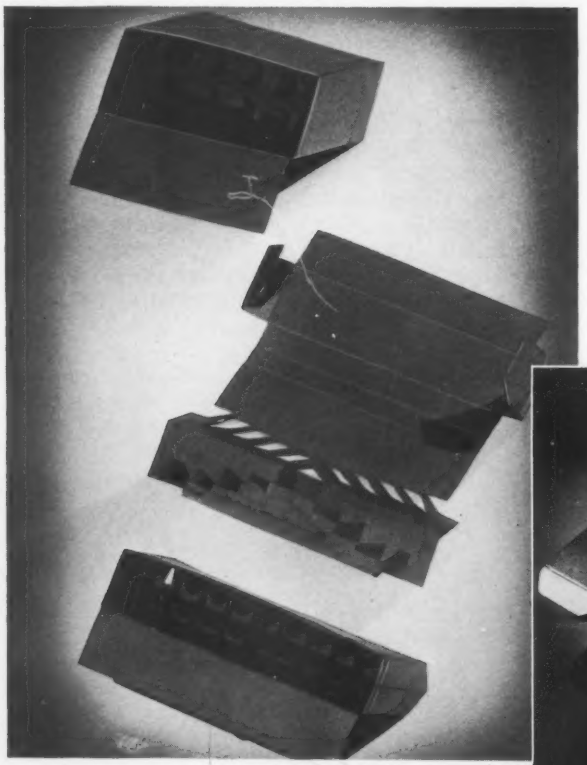
"Our thoughts, however, are not on accomplishments of the past but upon present and future problems, not only in our adhesive division, but in our starch department, which has been supplying the government with substantial quantities of edible starch for shipment abroad."

American Cyanamid & Chemical Corp. reported two of its developments of the year—first, a new resinous compound which imparts wet strength and other properties to paper. This is being used successfully in blueprint paper, in bags for shipment of moist products such as potatoes, in cartons and in paper tape to give greater wet strength to shipping materials. Its application to a number of other products now in a trial stage were said to look very promising.

The company stated that, "this new product needs only to be dissolved in water and with the addition of a common and inexpensive chemical can then be added to the stock at the beater or elsewhere. This simplified method eliminates the bother of surface applications. The paper will be found to retain a substantial percentage of its dry strength even after prolonged soaking in water."

The plastics division of this company has developed a stripping material in urea for the production of closures.

Left. Colored bands on paper glue pot is safety feature to designate work shift in which each batch of glue is used. Bottom. Paper containers for tobacco save tons of metal.



Heretofore, phenolics were the only compounds which would permit this method of cap production. By stripping is meant that instead of unscrewing the cap from the force plug of the mold, the caps are stripped off the force. This saves time and labor and also means that the material is slightly pliable at that time.

The development of urea to do this job means that molders who normally mold in this fashion can continue to operate by using this more readily available material.

Aluminum Co.'s major achievement in the packaging line, they believe, is their new and enlarged research laboratory at Edgewater, described in August Modern Packaging. Except for very special war purposes, aluminum is completely out for packaging, but the company's new laboratory was founded for research on special packaging problems now and after the war is over.

The Goodyear Tire and Rubber Co.'s rubber hydrochloride sheeting, formerly so important in the packaging of perishables, is now speeding the flow of airplanes and other military equipment to the army and navy. No more rubber is allowed for this protective film on civilian packages.

Goodyear chemists, in cooperation with engineers of the Peerless Photo Products Co., have developed a new product—an emulsified rubber film which has the property of maintaining its exact size under conditions of wetting and handling. The new product is used throughout the airplane and similar industries to speed the fabrication of templates for war plants throughout the country.

Dennison Mfg. Co. has developed a greaseproof paper that is doing a big job in the protection of ordnance supplies from corrosion for overseas shipment. In normal times exports were routed to the Coast in box cars, placed aboard ship below decks in dry holds and handled quickly with a minimum of exposure. Today, war goods may stand in railroad yards or dock sides exposed to the elements for many weeks. They may be loaded in wet holds or shipped on deck, or on lighters where they often get many dousings in salt water. To prevent corrosion under such conditions, the ordnance field service has drawn rigid specifications for packing and storing of ordnance supplies. All parts, greased or slushed with a rust-

Top. Paper cartons for typewriter ribbons. Center. Greaseproof paper wrappings prevent corrosion of small parts during shipment and storage. Left. Ingenious clip cartons for cartridges. Below. Bag-in-carton packages of paper and protective films to replace metal for food products.

preventative, must be wrapped with a greaseproof paper to hold the rust-preventative on the metal surface to which it has been applied and the parts wrapped in weatherproof cases. Dennison's greaseproof paper is adaptable to this purpose because of its limp, dead-fold quality, combined with a degree of adhesion. This allows wrapping to conform to the contour of irregular-shaped objects. The material also has the pliability of crepe paper, is strong enough for re-use and has many uses also on the home front.

Hampden Glazed Paper & Card Co. is manufacturing 100 pt. board for the army and navy air corps. This board is used as a mount for directional maps carried in airplanes. It is being shipped to all key points in the United States as well as to air depots all over the world. Hampden is also experimenting and developing various types of heat-sealing protective wrapping papers for ordnance parts.

Kalamazoo Vegetable Parchment Co. sent a list of nearly 40 uses for their papers in war work. Among these are papers used for camouflage, for wrapping machine parts, for various replacements of rubber hydrochloride sheeting. They are also making papers with greaseproofness, moisture-vaporproofness and wet strength for use in combination with fibre cans to replace tin cans formerly used for paint, oil, vegetable shortening, lard, peanut butter, margerine. This company's papers are also used widely for bag liners to hold frozen fruits, frozen eggs, cheese. Their papers also replace foil in wrapping candy and army rations. They are also used for wrapping army bacon and other meats, for wrapping fish, lining barrels, packing tea and bandages.

Decorative paper manufacturers generally are busy working on new methods of fabricating greaseproof and waterproof protective papers. The Marvellum Co. said it was working on many new papers for army and navy use and expect within a month's time to have standardized ten or twelve different papers of this type. Hazen Paper Co. is also working on the same problems.

From Interchemical Corp. came news of a new production line for sealing moistureproof cellophane envelopes, developed by a subsidiary, Ault & Wiborg Carbon & Ribbon Co.

One of the most important war packaging problems is to make fabric or sheet material impermeable to gases. The Cambridge Instrument Co. has devised a method of production testing of the gasproofness of such materials that requires a minimum of time for determinations and yet provides a convenient means for testing under plant conditions. This new instrument is called the Fabric Permeameter, based on the thermo-conductivity method of gas analysis. This equipment quickly determines the rate of permeation of hydrogen, helium, carbon dioxide and other gases through the material under test. Lateral diffusion as well as leakage at the seams can be determined.

Another important phase of wartime packaging is the wider use of agents for controlling the growth of bacteria, mold and mildew in paper, paperboard, fabrics and other materials. Perm-Aseptic Process Co., which introduced its new germicide in 1942, reported that its material had been accepted for use for slime control in paper plants and has been valuable in the conservation of textiles by control of bacteria and mildew.

Most fascinating developments of the year are the prefabricated, automatic, partition-included containers for small arms ammunition made by The Interstate Folding Box Co. These include containers for 30, 45 and 50-calibre ammunition. The range includes almost the entire line-up in small arms.

Some of the containers are made of one glued, die-cut piece, so ingeniously designed that set up it provides an inner-partitioned folding carton containing a separate compartment for each one of the 20 cartridges each unit contains. You can scarcely believe this honeycombed device is one piece until you take it apart and see it for yourself.

"In an entirely different direction, we have done a great deal of work in the development and production of moistureproof, heat-sealing thermoplastic films," wrote Robert M. Bergstein, vice-president of The Interstate Folding Box Co. "These are available in several forms, complying with various government specifications."

The company is supplying large quantities of bags made of this material for the packaging of Ration K. They are supplying other types of bags of this material up to 30-lb. sizes for frozen eggs. They are also providing large quantities of bag-in-carton packages to replace metal for many products.

Huge heat-sealing bags made with protective films, holding up to 30 lbs. and more, are used for shipping frozen eggs.

1. *Fieth Bros. change shoe cream from metal to glass. Then replace inner metal tray to hold applicator with paper disc like milk bottle top.*

Users Tighten Their Belts

Scarcely an industry that sells packaged merchandise escaped change in 1942. Everyone had to make use of other materials—substitutes for tin, substitutes for rubber, substitutes for foil, substitutes for cellophane, substitutes for certain types of plastics. Most of the stories that came in are examples of conversions—ingenious examples not only of American enterprise in the face of emergency but truly a salute to man's initiative. Out of the laboratories have come chemical compounds from common farm products for coatings that make paper hold oil, sealing compounds from other sources that make weatherproof fibre cases, closures that take the place of metal, cloth bags that hold liquids.

Even to the smallest details, packagers have adopted measures to save scarce material. A. H. Hoffman, Inc. maker of fertilizer and garden products, in its effort to save even a small amount of metal found a means of closing bags without staples. The problem was so'ved by a closure tab similar in construction to the soft metal ties you have seen on coffee bags and applied to the bag by a machine used for applying such soft metal ties.

No more metal is allowed for shoe polish containers. About a year ago Fieth Bros. adopted a new glass package, but the glass package required not only a metal closure but a metal tray inside the top of the jar to hold the applicator. Now the company has dispensed with the metal tray entirely and is using instead a paper disc seal similar to a milk bottle cap. The applicator is now placed over the paper disc beneath the metal screw cap. Thus more metal is saved. Perhaps next year, some alternate type of closure may enable this company to eliminate its metal cap.

W. Braun Co. was among the first to adopt a paper closure in the cosmetic field for its "Floré Waving Fluid." This cap was made by the J. T. & A. Hamilton Co., based upon their experience in the milk bottle field. After several months, Julius Braun stated, "We can now confidently state that it is not only a successful closure but in some ways is more satisfactory than the screw cap that it replaced. For close margin products such as petrolatum and wave set, our customers find that they can apply the paper cap faster than the screw cap."

For years S. S. Stafford, Inc. has marketed a rubber top mucilage container. Rubber was restricted nearly a year and a half ago and their supply was diminishing at an alarming rate. They made a package that didn't require rubber. "It is our firm conviction that the new package is superior in action to the old," they say now. The new container is much simpler. The applicator is just a part of the glass finish of the bottle. Take off the cap, tip the bottle and apply is all

2

you have to do. The company claims the device is cleaner and easier to handle than the old one.

"Our most significant achievements are the successful changeovers of our three main products formerly wrapped in aluminum foil to glassine" said Chr. Hansen's Laboratory, Inc.

Two of these products—Junket Rennet Powder and Junket Freezing Mix—were past All-America Package Competition winners. The company is entering this year's packages in war dress. New wrappers are two plies of glassine laminated together. Designs are essentially the same as on the foil packages, although various informative features about the contents were strengthened. Backgrounds, of course, are white instead of metallic. The display value has thus been found excellent and the protective values, the company stated, measure up well to those of the aluminum foil.

Cisco Pep is a product for sluggish motors made by the Cities Service Oil Co. It used to be packaged in a 4-oz. metal can. Now it's in a pint glass jar. This larger size offers the public a better buy and at the same time saves packaging material. This company's insecticide is also in glass. Both have applied color labels, fused into the bottle itself with ceramic paint. This permanent labeling is a decided advantage for products of this nature with solvent characteristics, which if spilled, tend to remove an ordinary paper label. Bottles are of standardized government design, made by Owens-Illinois.

Higgins Ink Co., Inc. made a departure from their customary way of packing 12 cartons of Higgins $^3/_4$-oz. drawing ink bottles. Instead of the expensive display container they formerly used, they are now wrapping a package of six individual cartons. This is an advantage to dealers who have found it burdensome to order certain colors in dozen quantities and has been welcomed also by jobbers. Since a large color spot appears on each carton, most of the dealers prefer to display the merchandise by placing the cartons of different colors spectrumwise along a shelf in view of the customer. This makes a handsome display and an assortment of colors is easily selected by the sales person. This new packaging required new plant equipment which the company received before freezing orders on machinery went into effect.

Rosenberg Bros. & Co. of San Francisco, packers of Sugaripe prunes and dried fruits, are proud of their new protective carton pack to preserve original moisture content and flavor for consumers in all climates after months of packing.

Bristol-Myers Co. began casting around for substitute packaging materials long before shortages made changes necessary. They were among the first, therefore, to institute a number of changes in 1942. To save paper during last summer's scare, Ingram's cream went from a glass jar with paper label and tuck carton to a glass jar with product name anigraphed directly on the glass. A sleeve of plain board protects the jar in shipment. Carton is completely eliminated. Minit-Rub changed from a collapsible tube to a glass jar. A waxed paper overwrap is no longer used on the Sal Hepatica carton. Printing is now done directly on the carton itself. Plastic Mum container was replaced by a glass jar. Brand identity was carefully preserved on all the new packages. Devoe & Raynolds skipped by tin and bypassed glass which would add to their transportation costs, and developed a dehydrated paint called Dehydray. True, Dehydray is in glass, but the dehydrated paint is a concentrate. A glass container full of it goes into a $3^1/_4$-in. cubical carton—enough to make a full quart of paint when mixed with water.

Many letters came to us mentioning changes from metal to glass or paper. Just routine stuff, they said, and it would take too much space to mention all of them—problems so universal that even those who have had to make changeovers scarcely consider them news.

In spite of shortages of materials, however, there are still a few new designs, new products and new packages. Among those who wrote to Modern Packaging about their new 1942 items were several who had designed packages for soldiers.

2. These bottles have permanent labels of ceramic paint fused into the glass. 3. Ingram's cream shed its carton and got an anigraphed label. Minut-Rub went from tube to jar. 4. Sal Hepatica discarded outer wrap, now has printing on carton. Plastic Mum jar replaced with glass.

3

4

5

6

7

Schrafft's designed an overseas service box of shoebox size—exact postal regulation size for foreign shipment. The box is similar to previous boxes (of heavy corrugated with embossed cover paper) packed by this company. Inside, the candies, fruits, razor blades, etc., are an exact fit so they don't shift around and so that there can be no complaints from the recipients about too much inner packing and not enough food.

Out in Thermal, Calif., the Valerie Jean Date Shop designed a new box for men in service. Concentrating on one box, this company eliminated over-buying to get a price—which means no carry-overs to another season. Also they have made the contents of this box an assortment of various grades of dates, thus saving labor and giving the purchaser greater variety of kinds. This saves the date farmer a great deal of expense in grading and makes for easier selling.

A duffel bag of soldier toiletries designed by McKesson and Robbins is among the attractive gift items of the year. This is a fabric bag printed with colorful military cartoons and slogans. Inside is an ordinary metal-end fibre can holding an assortment of McKesson and Robbins toiletry preparations. An attached card lists the various items and contains space for addressing.

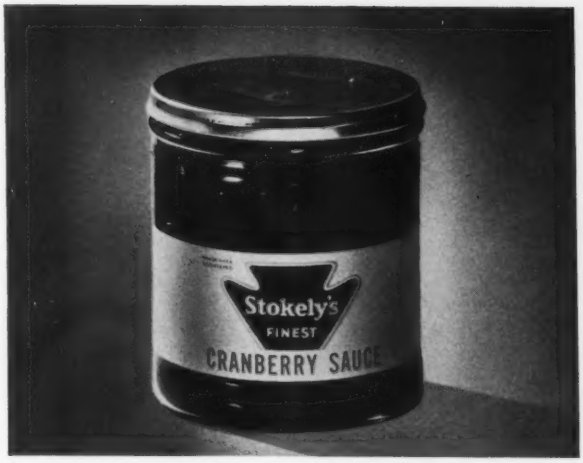
This company also adopted clever paper dispenser cartons for its aspirin and Corax tablets. Their Calox tooth powder is also in a paper container, described elsewhere in this issue.

Puritan Chemical Co. packaged its Drier-Outer, a product which absorbs moisture in damp closets to prevent mildew, in a spirally-wound fibre can. Inside the can is a perforated disc set up on a corrugated, criss-cross frame. The Drier-Outer is placed on the disc so that air may circulate about it and drippings of moisture be caught in the bottom of the container. By perforating holes in the top and bottom of the unit and having the Drier-Outer cubes in the dead center, then surrounding these cubes with specially treated absorbent material, the company has succeeded in developing a package practical for helping to prevent corrosion in the shipment of precision tools for lend-lease.

K. J. Quinn & Co., Inc., makers of shoe and leather finishes since 1880, have designed colorful lithographed containers with official insignia of the Marine Corps and U. S. Navy.

5. ***Schrafft's designed an overseas box, shoe-box size.***
6. ***McKesson and Robbins duffel bag of soldier toiletries.***
7. ***New paper dispenser cartons for drugs.*** **8.** ***Shoe polish boxes with official Navy and Marine insignia.***

8



9

10

These have been made under express authorization of these two branches of service. Another is being made with army insignia by authorization of the War Department. The boxes are of metal. Could be reproduced in other material if necessity demanded.

Hair dye came out of hiding in 1942. Huvuh Tintergent appeared on the market in a cylindrical transparent container. Inecto, ordinarily assigned to a closet or shelf, was put in a display case for the front of the beauty shop. Unfortunately these units are made from materials not now permitted for this purpose. However, they can be redesigned in alternates for the duration.

Simplification was another consideration of the 1942 packaging picture. Shultz & Burch Biscuit Co. reported that their efforts during 1942 had been a reduction in the number of their packages and simplification of their packages to meet war conditions. They are also devoting a large share of their production to Field Ration C, Unit B.

Several companies considered other things than packaging as their achievements of the year. For instance, Clover Farm Stores, who have thousands of items under their brands packed by independent canners, manufacturers and packers, say their greatest effort has been assistance to wholesaler and retailer members in adjusting methods to war conditions. Much of this has been boiling down into plain English the reams of government rules and regulations that affect wholesalers and retailers. American Molasses Co. is proudest of the educational material on nutrition they have prepared for teachers. Keystone Varnish Co., Brooklyn, N. Y., has developed a new paint requiring less coats, offered expressly for the amateur. This was done with the idea that labor would be short for painting and more would be done at home.

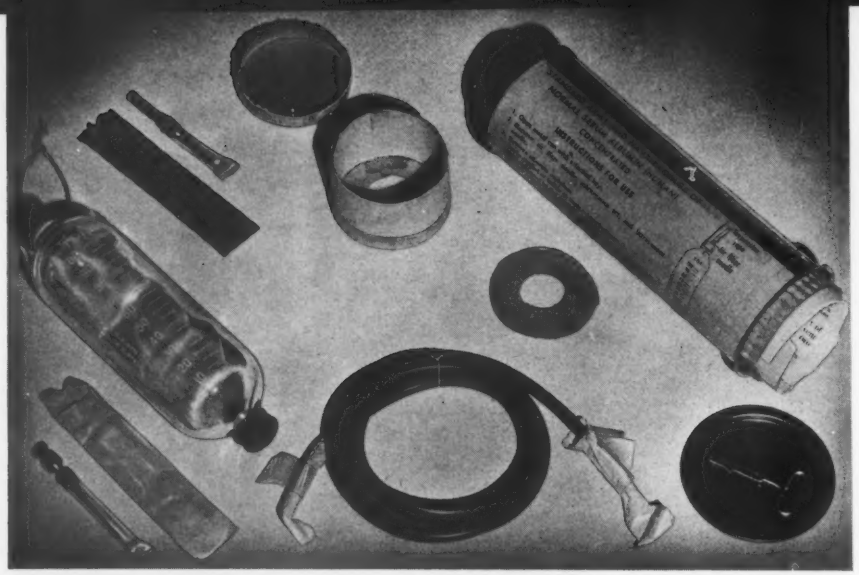
Longino & Collins, New Orleans, added old-fashioned 5-lb. wood pails to their line of preserves in glass more than a year ago. The pails were an immediate success—and even though people were accustomed to buying preserves in 1-lb. glass packages, the company has been selling five times as much in the wood pails (per each sale) as before. At the same time the company is saving glass, metal and rubber gaskets—as well as delivery service.

The casualness with which most manufacturers have accepted war changes is expressed by a spokesman of R. M. Hollingshead Corp., Camden, N. J.:

"We are pleased to list six most important changes which have taken place in our organization noted by our assistant

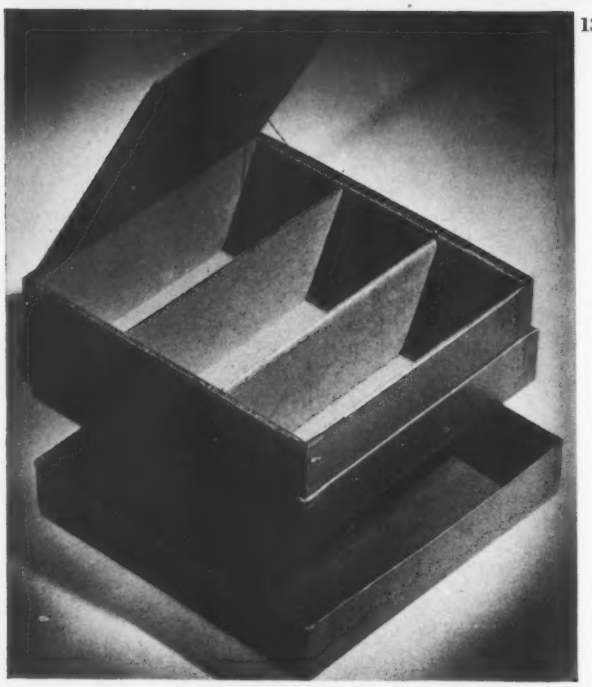
11

Brand identity has been carefully preserved on glass packages replacing metal. **9.** *Stokely's neat jar of cranberry sauce.* **10.** *Mystic Foam's new Victory label. Note space for explanatory information in big "V".* **11.** *Muirson Label Co. reproduced identically for a glass package the can label used on Ingersoll's chicken fricassee.*



12

12. *Serum human blood albumin is packaged in glass vial (left), along with equipment for its administration. Assembly fits into key-opening can at right.* **13.** *Three of these cans are placed in specially designed 2-piece telescope box.* **14.** *Employees of Walter P. Miller Co., who make these boxes, help fill them too by donating to the Red Cross blood bank.*



13

14

plant manager. (1) Changeover from tin cans to glass bottles. (2) Changeover from tin cans to black iron cans. (3) Elimination of many soldering operations by using sealing compounds, double seaming, riveting, etc. (4) Training girls to do the work of men needed in the armed services. (5) Training cripples and mutes to do special jobs to help in solving man-power shortages. (6) Changing and redesigning high-speed filling equipment to handle special government products and packages."

In April 1942, Sharp & Dohme won an All-America Package Competition Award for their packaging of human blood plasma. Since that time they have been among the companies cooperating with the U.S. Naval Medical School, National Naval Medical Center, Washington, D.C., in the development of the standard Army-Navy package of concentrated human serum blood albumin.

This unit consists of 100 cubic centimeters of the serum in liquid state ready to use. This unit is called a sterile intravenous injection assembly. Three of these units are packed in an outer box, made of 40-pt., 100 per cent kraft board with a wrapper of kraft on which is a double coat of lacquer outside. Inside it has a single coat of lacquer.

When fully packed this 2-piece telescope box is closed with latex content tape. Metal stitches are on all four corners.

Each serum unit is in a key-opening tin can. Inside this the serum blood albumin is contained in a double-end glass vial with rubber stoppers at each end. Also enclosed within the can is a small fibre container holding 44 in. of latex tubing. An injection needle, a connecting needle and a glass observation tube are separately packed in sterile sealed envelopes. Inner liner of flexible corrugated chipboard acts as shock absorber for the glass vial. A fibre can holds the latex tubing and nests compactly over one end of the double-end glass vial.

The metal can is a stock style, lithographed with full directions, supplemented by a very clear illustration. Full directions for using the serum are printed on an insert included with the assembly inside the can.

The outer box structurally is the same as that for the blood plasma package. The box with contents has been thoroughly tested, including drops from airplanes, before it was finally approved. It will withstand all kinds of shocks and weather.

Credit for serum albumin package illustated: Box, Walter P. Miller Co. Coatings, Du Pont. Tape, Industrial Tape Corp. Can, American Can Co. Vial, T. C. Wheaton Co. Rubber stoppers, The West Co. Fibre container, Cleveland Container Co. Other firms also make these parts to Navy specifications.

Machines Turn out Weapons

This is a mechanized war not only on the battle front, but on the production front, and packaging machinery manufacturers have made a large contribution to this mechanized production, particularly in the making of ammunition. Machines formerly made to fill packages of nuts and of dessert powder are now filling shells and cartridges with gun powder. This and the shortages of metal are the reasons why new machines are almost impossible to get these days.

This remarkable changeover in the short space of a year was voiced most aptly by H. H. Leonard, president of Consolidated Packaging Machinery Corp.

"In one sense I believe it is a very significant achievement of all representative companies in the packaging field to have been able to change over in so short a time from their regular line of manufacture to one in which they were entirely inexperienced," he said.

"In thinking about our own company, it would seem to me that possibly the greatest achievement is the recognition by the ordnance authorities of the relationship between the solution of packaging problems by automatic machinery and the solution in a similar manner of the various problems connected with ordnance manufacture

"While it seemed at the beginning of the war there was little similarity between the two lines, yet we have been able to approach the solution of ordnance problems in much the same manner as we have done on packaging problems."

Package Machinery Co. went into action on armament production many months before this country entered the war. Their first assignment was the building of batteries of loading machines for 30- and 50-calibre machine-gun cartridges. Each of these machines weighs 4,500 lbs. It loads the cartridges with the correct amount of powder, automatically removes dents from the shell cases, clamps in the bullet, measures the height of the completed cartridge and rejects over- or under-filled cartridges. Special cartridges, such as tracers, are tipped with paint for quick identification.

While these machines were being built, the company was busy devising a machine for automatically inserting rifle cartridges into clips. These machines are now being built in large quantities. Operating at high speed, these clip loaders have released many workers for other armament production. Another machine invented by this company inserts 20 cartridges into a cardboard container, two rows of ten cartridges each being packed.

Working day and night to complete these orders, this company has not been able to promise early delivery of their regular wrapping machines, even to those who had high priorities.

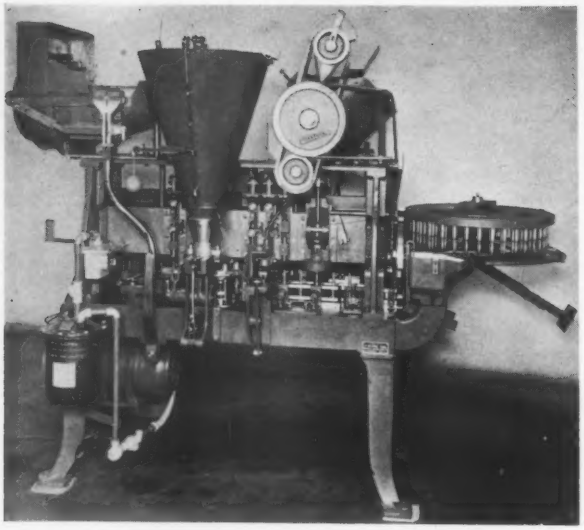
George A. Mohlman, president of Package Machinery Co., described the company's "Wrapping Machine Procurement Service," to solve this problem and offered free to those in need of additional wrapping machines.

This is something of a clearing house between users of wrapping machines. Owners of equipment for which they have no current use are put in touch with manufacturers who need additional wrapping machines. Since most of this company's machines are adaptable to many uses, the manufacturer who sells a machine need not be in the same field as the one who buys it. The company also furnishes information about how to obtain permission from Washington for the transfer.

Here are some examples of what has been accomplished through the service. A cigarette manufacturer who had replaced some old machines with higher-speed models, sold the old ones to a food manufacturer to wrap army rations. A soap-wrapping machine is now wrapping ration bars for a chocolate manufacturer. Other candy bar manufacturers obtained machines from perfume and cheese manufacturers. A packer of fish and fish fillets sold his machine to a packer of figs and dates. A drug company sold a machine to a cracker baker to wrap rations. A wholesaler of private branded groceries released his wrapping equipment to a candy manufacturer.

Package Machinery Co. invites manufacturers to list with them machines which they can sell or lease. Factory number and type of wrapping it has been used for, is all the information

Left. Dispatch tubes rush blueprints in plants, cut down number of blueprints needed and thus possibility of information leaks. Right. Conveyor baskets lift materials out of aisles, move them overhead to save time and space.



Package machinery makers turn out cartridge loaders.

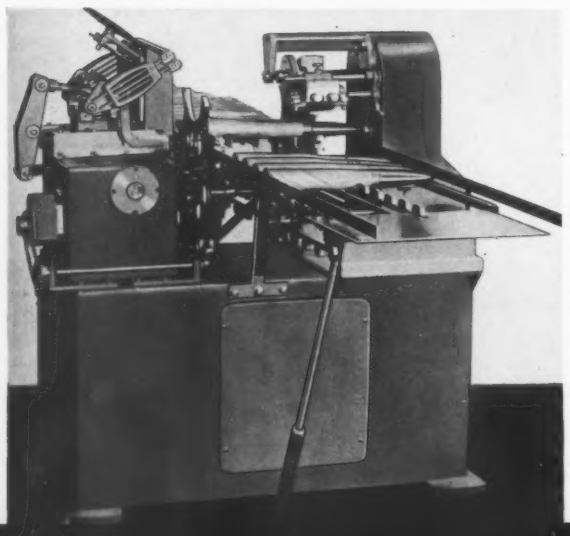
necessary. The company does not buy or sell, but merely brings the interested parties together.

This company's machines are also used for wrapping tons of gauze bandages, sulfanilamide in handy tins for self-administration by soldiers, and radio batteries.

New Jersey Machine Corp. was also among the vanguard of machinery makers to get into war work. Their biggest achievements are a motor air pump, used for vacuum and blowing, which is speeding defense jobs in many plants, and their machine-gun belt loader. This equipment loads cartridges into fabric machine-gun belts. All cartridges are perfectly aligned automatically, to prevent jamming of guns when they are fired. A single machine loads three belts simultaneously and permits the loading of several different types of cartridges in each belt, changeable according to specification.

No few words can really express the time and labor saved in war industries by the modern conveyor, but there is one use the Lamson Corp. mentioned specifically. It is called "the Magic Carpet." It is used in an aircraft plant for lifting, in baskets, raw materials and finished parts out of aisles and moving them in continuous flow along the ceilings. In one plant, yearly savings in truckers' service alone by this device were said to equal the man-hours needed to build a large patrol bomber. Another Lamson development is a dispatch tube which not only reduces time lost in walking and waiting

Automatic machines put the markings on ammunition.



for job tickets, requisitions, small tools, but rushes blueprints at express-train speed from centrally controlled files to widely separated buildings. In one plant expensive blueprint production was cut down 40 per cent and only two prints are needed to serve from 5 to 15 manufacturing departments by means of this device. Fewer prints in circulation means less chance for Fifth Column leaks.

Markem Machine Co. has a special war job in producing high-speed marking machinery for ink marking around a shell and on the base of live loaded ammunition.

"The sudden call for huge quantities of Army rations caught the food industry without necessary wrapping or packaging machines to wrap either the fruit bar or biscuit components of the ration K," wrote R. H. Freeman of Miller Wrapping and Sealing Machine Co.

"In surveying the situation we conceived the idea of furnishing our semi-automatic wrapping machine with two folding stations instead of the customary one and using it in conjunction with our "speed-wrap" or automatic sheet cutting and gluing machine. We tried the idea and it worked. The plan of operation is to place the "speed-wrap" so that the sheet delivery conveyor travels in the direction of the wrapping machine which is thus at the end of and at right angles to the sheet conveyor. This conveyor consists of a series of narrow belts. Two sets of tapered wooden blocks (2 to a set) are placed under the belts in such a way that a narrow trough, just as wide as the ration, is formed between each set of blocks. Conveyor belts travel over and between the blocks.

"The sheet cutting machine cuts and glues from two rolls of cellophane at a time and delivers the cut sheets over the troughs formed by the wood blocks. When the ration is placed on the cellophane it sinks into the trough and raises the ends of the sheets so that the bottom overlap can be easily formed on the packages by the operator. This overlap is immediately sealed in position by a line of glue which has been pre-applied by the machine. At each intermittent action of the 'speed-wrap' then, two sheets are cut, two banded packages are carried out of the troughs by the belts traveling between the wood blocks, and two new sheets are positioned over the troughs by the belts traveling over the wood blocks.

"Three girls form the machine crew. Two handle the banding operation on the 'speed-wrap' and the third picks up the banded packaging coming down the sheet conveyor to the wrapping machine and drops them into the wrapping machine two at a time. The wrapping machine folds and seals the ends of the packages and ejects them automatically. Forty-two packages per minute can be wrapped this way. While not fully automatic, this is decidedly an advanced step over hand wrapping."

While they are not building any more machines except on high priorities, Rotogravure Engineering Co. announced the development of a vaporproof paper and a special machine for the production of these papers available in 78-in. wide rolls or narrower.

Ertel Engineering Corp. report the development of an apparatus, materials and methods for the filtration of infusion fluids, which are being used in the fulfillment of a large government contract for the preparation of blood plasma.

Roy Johnson, vice-president of Arenco Machine Co., wrote:

"We manufacture tube filling machines, which have already been honored by the award which we were given in the 1941 All-America Package Competition. I believe, therefore, that if we have achieved anything at all it is the transition from being importers to manufacturers. I feel that your organization will rejoice with us that the transition has been possible."

(Page 50)

What's Ahead?

The government controls the industrial economy of the nation and will continue to control it until the war is over. Whether we like it or not makes no difference. If it is the way to win, and it appears that it is the only way to win—then we're going to have to accept it.

There is no uncertainty about that part of the future. If the government needs man-power, materials or money, it is going to draft them to the limit they are needed.

The other day a charming young lady from a cosmetic house arrived at our office, breathless from a trip halfway across the country in search of rouge plaques. In case you don't know, a rouge plaque is the little domed metal disc that forms the base for a compressed dry rouge tablet.

"Where can I get some of these?" she said frantically. "If we don't get them, we'll have to discontinue production on this item. Our machines are such that we can't make the rouge cakes without a plaque. We would pay anyone anything if they would make them for us—or for a substitute plaque we could use on our machines. And this is not the only packaging problem we have," she said.

She was a very charming young lady and nothing would have pleased us more than to help her. We suggested the possibility of substitutes, but what substitutes?

Almost anything you can mention today is critical or requires equipment to fabricate it that is unprocurable. This example is only one small instance of a product that is of considerable importance to one company—but is not important to winning a war. There are hundreds of thousands of packaging problems throughout the country which fall in a similar category. It is too bad. Some of them may be solved, but not all of them.

1943 is going to witness tremendous suspension of nonessentials for the duration. Modern Packaging has been predicting increasing aggravation of this situation since before the war started. These predictions have been right so far. Those who heeded them and planned accordingly have been that much ahead of the game when bad news broke.

Users of packaging material may look to a further reduction in the availability of all packaging supplies for five primary reasons: shortages of raw materials, man-power, fabrication equipment, transportation facilities and power.

Watch for news on these points

Forecasters say to watch for a whole series of government announcements during the next few weeks. They will undoubtedly be concerned with some of the following points:

1. Further rationing of materials and merchandise.
2. Standardization and simplification—particularly of container sizes and styles.
3. Concentration of manufacture and production of standard goods by nucleus plants.
4. Greater limitations on the use of transportation facilities.
5. Greater control over man-power.
6. Stricter price control enforcement.
7. Restrictions on number of brands.

Evidence of these trends is already seen by the tightening of the use of tin and steel for cans covering a wide list of food products for civilian production in the amendment to M-81 issued December 9. The recent freezing order on pulp is indicative of stricter control over the use of paper.

There may be restrictions also on shifts from one packaging material to another. Unless a product can be shown to be an essentiality, it will be difficult to obtain packaging supplies for future distribution of it.

Indication of the trend in the supply of raw materials was expressed by Harvey A. Anderson, Chief of Conservation and Substitution Branch, who said, "We must expect many materials to become scarcer than they are at present. Variations in water, rail, truck and plane shipping facilities, in labor supply, in stocks on hand and in governmental regulations, as well as other factors are seriously affecting the supply of available materials."

In regard to standardization and simplification, a WPB news release stated that the Office of Civilian Supply has begun a survey to determine what simplifications of consumer goods have taken place since the outbreak of the war. This is "a first step" in a vigorous program of simplification and standardization of consumer goods.

Concentration of manufactures

Concentration boils down to the fact that if factories are unable to get help and have to go on a reduced production schedule because of labor and material shortages and transportation bottlenecks, an effort probably will be made to concentrate manufacturing in those factories large enough and well enough situated to handle the shipments of materials in large quantities on through routes.

ODT enters into the concentration picture, too, since definite steps are being considered to eliminate cross-hauling—that is, shipping from New York plants to Chicago consumers products identical with those being sent from Chicago plants to New York users.

Here is another angle to concentration from the packaging aspect. Empty containers are said to constitute about 6 per cent of total transportation in the country, containers around packaged goods constitute another 6 per cent, raw materials going into containers and packages another 6 per cent—a total of 18 per cent. Concentration, it is claimed, could cut this down.

The Containers Branch hopes to be able to arrange packages for every product that has to be shipped, but first-class sailing orders will be given to products considered essential. If there is anything left over, the others can have what's left.

Containers Branch looks to business papers and persons outside the government who are conversant with problems of the division to do a job of getting the "shortage" picture across to the public. Even though the war has been going on for a year, there is still a segment of industry and the public that think they are being "picked on" when any specific order affecting them is issued, said one WPB spokesman. They feel that if they can come to Washington, make a strong case in favor of their side, they can beat the order. There's little chance of that now. All are in the war together. Everybody must make sacrifices and burdens must be shared equally.

This is the 1943 picture and it must be faced with courage.

Two cabbages, two bunches of beets, three bunches of carrots and seven pounds of potatoes, with their dehydrated equivalents lined up in front.

Packing and storing dehydrated vegetables

In 1940 about 5,000,000 lbs. of dehydrated vegetables were being produced. The whole industry had sales totaling little more than $500,000. In 1941 Lend-Lease tripled vegetable output to 15,000,000 lbs. Today the Army alone is in the market for 500 per cent more dehydrated vegetables than the whole industry could produce a year ago. This tremendous development calls for specialized methods of packaging. The following material is from an information sheet, prepared by A. L. Pitman for the Bureau of Agricultural Chemistry and Engineering, Agricultural Research Administration. It summarizes the most widely used methods of packaging and storing dehydrated vegetables.

Packages for dehydrated vegetables must protect the quality of the contents under severe conditions of export shipment and storage. These conditions vary within a wide range and for that reason tinplate cans, hermetically sealed for certain dehydrated vegetables or with friction tops for others, are widely used and preferred. Other containers are included in the tentative specifications for both the U. S. Army and the Lend-Lease purchase,[1] but have not been used to any great extent. Through the issuance on July 21, 1942, of Bulletin SPQSD 457 (Chicago) the Quartermaster General has approved the use of a sealed foil package. Use of this package has been requested as materials for it become available and when the present stocks of cans are exhausted.

Another information sheet in preparation is for manufacturers of protective wrappings, packages and packaging machinery. Those who want further information on substitutes for tinplate should write for that sheet.

No standard loadings per can have been established. Table 1 shows that the greatest demand for containers, on the basis of raw input to the plant, will come from sweet potatoes. A 50-ton plant would require 1,500 to 2,000 5-gal. cans per 24 hours. While this represents a considerable volume it requires the handling of only 60 to 80 cans per hour. Because of this low requirement, highly mechanized packaging lines are not used in plants where 5-gal. cans are the containers for dehydrated vegetables.

The scale should have a 50-lb. range at most, since the gross will be generally not over 25 or 30 pounds. An attachment for indicating the amount over or under is very useful and a tare weight should also be provided.

[1] For U. S. Army specifications write the Commanding General, Chicago Quartermaster Depot, 1819 West Pershing Road, Chicago, Illinois, and for Federal specifications apply to the Agricultural Marketing Administration, U. S. Department of Agriculture, Washington, D. C.

TABLE 1.—ESTIMATING CONTAINER DEMAND

Vegetable	Form	Weight per 5 Gallons, Lbs.	Drying Ratio, Raw Prepared to Dry Lbs.	No. of 5-gal. Cans per 10 Tons Raw, Untrimmed Vegetable
Beets	3/16-in. slices	10	8–9 to 1	170–190
Cabbage	Shredded	5	10–15 to 1	200–300
Carrots	3/8 in. cubes	14	8–11 to 1	100–130
Onions	Flakes	9–12	9–11 to 1	110–190
Potatoes, white	Cubes	16	4–5 to 1	190–230
Potatoes, white	Strips	10–15	4–5 to 1	250–380
Sweet-potatoes	1/4-in. slices	12	3–4 to 1	310–420

A sorting table or conveyor is frequently required. This may be used for various purposes, such as removal of off-color pieces, and separation of lumps of insufficiently dried product. A large, flat, plywood funnel is frequently used when tray loads of product are dumped into transfer cans. It is preferable to pack directly into shipping containers so far as is practicable, thus avoiding chance insect infestation. In some cases, closed moisture-equalizing bins provided with chutes which open over the filling scales are used. Vibrators are often used in packing to produce a higher bulk density. Cabbage is pressed with mauls fitted into the round openings of the cans.

Cans may be required to have friction tops, soldered tops with stud holes, or tops which can be rolled on by machine. Hand or rotating flame soldering equipment will be needed for the first two types. Semi-automatic cap clinchers or seamers will be required when solder is not used. These may be secured from can manufacturers. Secure soldering irons with more than normal wattage since solder will probably have a higher melting point in the future.

The bag-in-box container described in Bulletin SPQSD 457 will require a heat-sealing machine with thermostatically controlled, heated jaws. Controlled pressure and crimp-type jaws are usual.

Sealing the cans

The tentative specifications call for a hermetic seal for cabbage and carrots. One definition of a hermetic seal is that it will confine gases or vapors without leakage for long periods. The absence of leakage is shown by the maintenance of vacuum or pressure in cans which are vacuum or pressure sealed. The term "hermetic seal" may have different significance according to whether there is pressure, vacuum or an absence of either when the seal is made.

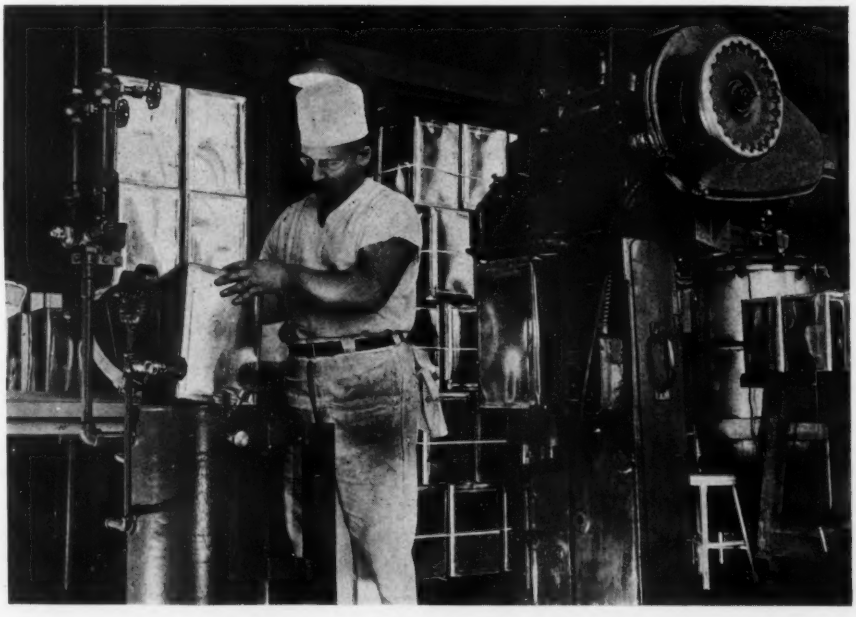
Operators of dehydraters should bear in mind when packing gas-filled cans for Army, Navy or Lend-Lease shipment that the product may cross the Rocky Mountains. One pass is 8,013 feet; others are 7,000 feet, and there is considerable country at 5,000 feet elevation to the east of the Rockies. A gas-filled can is sealed at atmospheric pressure. Subjection of such a sealed can filled at sea level to an altitude of 5,000 feet is equivalent to packing the can at 2 1/2 pounds per square inch (gauge) internal pressure. The soldered seams and closures must be tight at this pressure. If leaks occur, due to this pressure, part of the contained gas will escape and on approaching sea level again, will be replaced with air. If a leaky can were packed at sea level, shipped over a 5,000-foot pass and returned to sea level, there would result a 4 per cent increase in the oxygen content of the can.

Packing in air

The packing of dehydrated potatoes is typical of methods for all products which may be packed in air. The product must be protected from moisture absorption at temperatures occasionally as high as 130 deg. F. or as low as −15 deg. F. Insects must be excluded. Friction-top cans are used for potatoes. The cover is spot-soldered after the can is filled to hold it in place during rough handling.

Many strip-cutting machines produce strips the length of

U. S. D. A. PHOTOS BY KNELL



A specially designed machine pumps air from each tin of dehydrated carrots, replacing this air with carbon dioxide, an inert gas that prevents loss of color and flavor and finally seals the can.

Plant chemist analyzes sample of dehydrated carrots. Frequent examination of samples for quality is necesssary to make sure that the product meets the U. S. Government specifications.

the potato. Some machines reduce the length to $^3/_4$ inch. If the machine is of the former type, the dried strips may be broken to approximately $^3/_4$ inch before packing. Various means for crushing may be utilized. Fines should be screened out. Of course, the goal of the operator is to provide a product that may be restored to appearance as well as the taste of a fresh vegetable. Vibratory methods should be considered, because vibration does not reduce the strip lengths, while crushing does. Generally speaking, any dimension of a strip or slice over 1 inch is likely to result in loose packing. Some slices such as those of sweet potatoes and white potatoes are exceptions. They yield non-curling slices and a relatively high weight per gallon of dehydrated product.

Dehydrated vegetables packed in air may be enclosed in non-rigid containers made with a laminated foil as the chief moisture-proof material. The vegetables included are both white potatoes and sweet potatoes, turnips and beets. The following description is abstracted from a detailed bulletin, mentioned earlier, issued by the Quartermaster General's office. The package is made up of an inner bag of laminated glassine. A second bag of heat-sealing cellophane, laminated to metal foil and kraft paper is outside the first bag and packed in a 5-gal. carton. Two such cartons are packed in an outer box or carton. All producers of the dehydrated vegetables mentioned should obtain information regarding this package if they prepare Army shipments: (1) because it is stressed as a substitute for metal cans and (2) because it is typical in construction of various types of carton liners of high moisture resistance. The individual cartons are lined and assembled by the use of rectangular mandrel or frame. (ED. NOTE: Possible change in specifications to eliminate inner bag of this unit were being discussed as this went to press.)

Packaging in carbon dioxide or in nitrogen

Absence of air is specified for cabbage and carrots. The purpose is to lengthen storage life, since in the presence of air the palatability, vitamin content and color are lost more rapidly than in its absence. The containers which may be used are solder-top, rectangular cans or cans provided with a machine-sealing, non-soldered top.

It is recommended that for specification purposes a definite maximum limit of 2 per cent be set on the oxygen content of sealed containers. The analysis is to be made at least 12 hours after filling and sealing.

There are three methods by which air may be displaced effectively below the 2 per cent oxygen limit: (1) the carbon dioxide snow or "dry ice" method; (2) the vacuum bell method; and (3) the cylinder and meter method.

The carbon dioxide "snow" method is recommended as suitable when shipment and storage of the solid carbon dioxide blocks result in less than 50 per cent loss. It was developed in this form by the Dehydration Committee. Unlike water ice, this product changes directly into a gas when heated. Solid carbon dioxide is shipped for use regularly from Berkeley, Calif., to inland points 120 miles away. It is packed in a quadruple corrugated carton to insulate the block, which maintains itself at a temperature of approximately minus 70 deg. F. A 10-inch cube weighs 55 pounds. A top-opening bin should hold 3 cubic feet for every 10 tons of plant capacity. Losses per day are 10 per cent during shipment and 6 per cent per day in storage.

A storage bin should probably hold enough solid carbon dioxide for three days' operations. Let us consider a cabbage dehydrator with a daily capacity of 10 tons input from the field. By reference to Table 1, it is seen that an

average of 250 5-gal. cans will be the daily output, or 750 cans in 3 days. One-quarter pound of solid carbon dioxide is used per can, which amounts to 188 pounds net in 3 days. The average storage time will be 2 days at 6 per cent loss per day, requiring the receipt of 112 per cent of 188 pounds; i.e., of 210 pounds. For left over stock of "dry ice," space for 50 pounds additional may be allowed. This brings the total to be stored at any time to 260 pounds. Since one cubic foot of "ice" weighs 95 pounds, the bin should have a capacity of 3 cubic feet.

It is customary to use hardwood for the framework of such storage bins and metal or plywood for the lining. Use a 6-in. layer of cork slab insulation, if procurable, or balsa wood, kapok, or their equivalent in redwood fibre or other insulating material. When redwood fibre or other flocculent material is used, tar paper is placed only on the outside of the insulation to prevent ice formation in the insulation. For a cover, use a light, 4-in. thick kapok pad covered with duck since a hinged counterpoised cover is frequently left open much of the time because of effort required to raise and close it.

A coffee grinder will be needed to break the solid carbon dioxide into a coarse snow-like form. A shallow box to catch the "snow" and a scoop holding $^1/_4$ pound of the fine material will be required. Gloves should be worn to prevent injury to the hands.

With one method, the cans have a $^1/_{16}$-in. hole punched in the top or lid to permit passage of gases or air. The hole is best situated in a slight depression to facilitate soldering. A drilled hole is unsatisfactory because of the untinned iron on the sides of the hole.

In order to provide a device which will keep the bottoms freely exposed to water a shallow trough a little wider than the cans is required. The bottom of this trough should be equipped with two strips about 1 inch high. Slowly flowing water is passed through the trough at a maintained depth of 4 to 6 inches. The trough should be located between the packing station and the capping machine. A second trough or conveyor, without water, receives the capped cans. Its length should be such that cans will stand in it 10 to 15 minutes after being capped. A hand-soldering station is located at the discharge end of the second trough.

Solid carbon dioxide is available throughout the country. There are two or more large chains of distributors. One chain has seven plants or warehouses on the West Coast alone.

Carbon dioxide "snow" method

The method is simple and effective. A little carbon dioxide "snow" is prepared by grinding and sifting through a sieve having 10 meshes per linear inch. One-fourth pound is scooped up in a measure and poured into an empty, tared 5-gal. can on the scales. The accuracy of the scooped weight is checked so that the correct net weight of vegetables will be assured. The ground material is shaken quite evenly over the bottom of the can. The operator then weighs in the cabbage or carrots and sets the lid loosely but accurately on the opening and the can is placed in the water trough.

At once a rapid evolution of carbon dioxide gas takes place, escaping around the cover. The volume of the gas generated by the carbon dioxide "snow" is 2 cubic feet, or over three times the volume of a 5-gal. can. It is heavier than air and, because of this, it pushes the air up and out rather than mixing with it. The can must not be capped until most of this evolution has occurred. It is so rapid in the beginning of the process that the $^1/_{16}$-in. hole will not allow the gas in the can to escape safely.

After 6 to 12 minutes in water, however, all the solid car-

Dehydrated carrots drop from endless belt conveyor into large tin containers. In their passage along conveyor, they have been carefully inspected by a corps of highly trained women employees.

REYNOLDS METALS CO.

The Army 5-gal. dehydrated vegetable package with a bag of heat-sealing cellophane, laminated to metal foil and kraft paper, which is contained inside the carton.

bon dioxide will have gasified and the can may be capped. While the can stands in air, the contents warm up and the increased gas pressure is relieved by the discharge through the small vent hole. The can is then easily sealed with a drop of solder.

A slow stream of water must flow in the No. 1 trough when operating. This speeds the gas evolution tremendously. Without it, an hour is required for the first step. If any pressure is developed in the cans, it will probably be due to coarse grinding, poor distribution of snow in the can, or standing too short a time, particularly in trough No. 1.

Two hazards in this method are frost-nipped hands and bursting cans from too early capping or other deviation from the method outlined. For example, should an operator decide to use more carbon dioxide, or a coarser snow than 10-mesh, a longer time must be provided in the first trough for safety. In experimental studies with this method, cabbage and carrots have been sealed repeatedly in atmospheres containing 0.8 to 1 per cent oxygen. A semi-automatic cap clinching machine was used. One-eighth of a pound of solid carbon dioxide produced an atmosphere of 1.8 to 2.0 per cent oxygen. Five-gal. cans were those used in the above mentioned experiments.

Vacuum-bell method

The long-established method of removing air from 5-gal. cans and replacing it with carbon dioxide or nitrogen may be termed the vacuum-bell method. The method requires equipment similar to that of a vacuum canning operation. There is a flat plate with space for one or more cans. The upper surface of the plate is machined to a flat surface. Cans are placed on the plate and are covered by a heavy metal bell provided with a counterpoise. For the evacuation of the air under the bell, a vacuum pump is provided. The effectiveness of the equipment depends largely on the closeness of the joint between the bell and the plate, governing the leakage of air inward, and on the degree of vacuum to which the pump can exhaust the bell and the air in the can or cans thereunder. Some pumps are reciprocating, some are rotary. The latter are preferred since, when properly made, they can evacuate a tightly fitting bell to within a quarter of an inch of mercury (4 millimeters) of absolute vacuum. Reciprocating pumps may be used to produce less than 2 per cent of oxygen, however, in the processed cans. Many reciprocating pumps may be double staged, thus increasing the vacuum obtained and lowering the final oxygen content in the container. An orifice in the line from the pump to the bell space is so adjusted that air will not be removed from outside the can so fast as to cause it to bulge while the vacuum is being drawn or to collapse while relieving the vacuum.

The vacuumizing and gassing procedures are carried on as follows: The can is filled with a weighed amount of dehydrated vegetables, and a cover placed on it. The cover is held above the can by indentations in the periphery. The resultant space between the can and cover allows a free flow of air out of the can and of inert gas into it. The filled can with cover is next placed under the vacuum bell and the bell is lowered. A vacuum of at least 29 inches is now drawn on the bell and this vacuum is immediately released with nitrogen or carbon dioxide. To be certain that the vacuum is relieved, a positive pressure of 1 to 2 pounds per square inch is built up in the bell. The bell is now opened and the can is removed and hermetically sealed immediately.

The most common method of removing air has been by the use of gas run from a cylinder through a reducing valve, a rubber tube and a metal purge tube thrust to the bottom of the can. The amount of gas is controlled by the pressure setting of the reducing valve and the duration of flow. The setting has usually been based on the time required to extinguish a flame at the mouth of the can. While this has sometimes resulted in analyses below 2 per cent oxygen, the time is not accurately measured so that analyses of cans treated in this way have been found to vary several-fold in their oxygen content.

The Dehydration Committee has found that the introduction of an iron-case dry gas meter between the cylinder and purge tube was of great assistance. The stock meter used was equipped with one of the dials showing 1 cubic foot per revolution.

To purge a can, the gauge is set at 30 lbs. per sq. in., the purge tube is thrust to the bottom of the can, the lid is slid over the opening as far as possible, and 2 cubic feet of gas is allowed to pass. The tube is removed, the lid is set in place and the cap is clinched or seamed tight. When carbon dioxide is used, 1.5 to 1.8 per cent oxygen will be attained in the closed can. With nitrogen, results may be over 2 per cent of oxygen.

Control of insect infestation

Paragraph C-1-b, Tentative Federal Specifications for Dehydrated Sweet Potatoes, June, 1942, reads as follows: "If there is evidence of insect infestation in the packaging room or the packages, it shall be required that the product and the packages be heated to 135 deg. F. immediately before packaging." Gas packing of carrots and cabbage is specified. This results in an additional safeguard against insect infestation, since it has been established that an oxygen content of less than 2 per cent destroys insect life in all stages of development.

Labeling and packing

Labeling is described by Army, Navy or Lend-Lease contracts. Current tentative U. S. Army and Federal Specifications require, unless otherwise specified, that each container shall be marked with the following: Name and type of product, the net weight in pounds, the month and year of dehydration, name of packer, location of processing plant and specific direction for rehydration.

Packing is defined in both Tentative U. S. Army and Federal Specifications.[2] Weatherproof solid fibre, and nailed wire-bound wood boxes are the types specified for export shipments. The Agricultural Marketing Administration has used the same specifications in connection with Tentative Federal Specifications.

Marking of shipping containers

Marking of shipping containers normally consists of:

Name and type of product, the net weight of the product, the gross weight of and volume occupied by the container, the date of packaging, and the name of the contractor.

It is important for the operator to stencil finished boxes daily. The stencil shows the date of packing. In case inspection or analysis of the product reveals too high a moisture content, for example, the number of cans of product subject to question will be less than would be the case if several days' product had been grouped together.

Storage at the dehydrator

Cases of dehydrated vegetables should be stored under cover. They should be away from the roof, or separated from it by an air space to avoid heat from the roof.

Two 5-gal. cans occupy 1.75 cu. ft. when boxes or 87.5 cu. ft. per one hundred 5-gal. cans. A 50-ton plant operating on white potato strips would pack 10,000 to 14,000 5-gal. cans in 7 days. These cans, crated, will occupy 9,000 to 12,000 cu. ft. This is without an allowance for aisles. Dehydrated vegetables should be protected from heat so far as possible. They are known to keep for long periods when cold, and to spoil rapidly if they are maintained hot.

[2] See War Department QMC Form No. 304, Revised. This may be procured by request from Chicago Quatermaster Depot, 1819 West Pershing Road, Chicago; California Quartermaster Depot, 15th and Clay Streets, Oakland, California; or other Depots.

Measurements have been made on moisture content in relation to storage life. Clearly, the moisture content must be reduced below the point where molds will germinate and grow. Experiments at 90 deg. F. have demonstrated that the life of cabbage, determined by retention of vitamin C, is increased 50 per cent for each 1 per cent decrease in the moisture content. This relation held over the range of 12 to 3 per cent moisture. Similar relations have been noted between moisture content and palatability of carrots.

When a processor turns out a product that is regularly 1 per cent below specification limits for moisture, he may rest assured that by so doing he is lengthening the storage life of his product by a substantial amount.

The importance of careful dehydrated food packaging was revealed forcibly at the dehydration training school in the words of Col. Paul P. Logan who brought greetings from the Quartermaster General.

"The most precious thing in the war effort is tonnage . . . the 40 cubic feet of space commonly called a ship's ton," he said. . . . "It behooves us in the supply side of this picture to make the best possible use of every single inch of every 40 cubic feet. And dehydration is the natural answer.

"It must be remembered that if dehydrated or any other kind of foods is sent overseas which have not been properly handled, which men cannot eat, or which spoil either because they were not properly processed or because of improper packaging, then truly a crime—a sin has been committed against this country. Energy has been wasted, land has been wasted, railroad transportation, food stuffs—everything has been wasted, and when the soldier needs the stuff he doesn't have it.

"So plant operators should take such steps as will positively guarantee the food quality of the product and will guarantee the keeping quality by use of the proper packaging. . . .

"Dehydration has been launched into what I honestly believe is a fixed place in the future of America's food preservation. I don't know where dehydration will end up on a comparative basis with other forms of food preservation but we have now established three types of food preservation—canning, quick frozen and now dehydration. Perhaps the fourth and fifth methods of preservation will become known within the next two or three years. That remains yet to be seen."

SARDIK FOOD PRODUCTS CORP.

Dehydrated vegetables should be stored under cover but away from the roof or separated from it by an air space to avoid heat. There should also be an allowance for aisles.

Biscuit label

Oven-Ready Biscuits, a product of Ballard & Ballard Co., Inc., of Louisville, Ky., have been on the market for some years and the item has proved to be a successful one, according to the makers. Oven-Ready Biscuits filled the need for a product that would enable busy housewives to serve tempting biscuits in a minimum of time and with assured results. With these biscuits, it is possible to have them on the table 10 minutes after opening the package.

With Oven-Ready firmly established with consumers, Ballard & Ballard decided to promote other advantages of the product in addition to its speedy from-package-to-table feature for biscuits. So new recipes were developed which would increase the appeal to consumers and enable the dealers to broaden their market by selling related items. Selling of related items has long been a merchandising angle that has appealed to dealers and consumers alike. Now with the wartime stress on acquainting homemakers with a wide variety of products so that they will be able to switch foods on their menus with no loss of flavor and nutrition, related item selling has grown in popularity.

As the best means of acquainting the consumer with the added uses for Oven-Ready Biscuits, Ballard & Ballard selected a new label because the label goes direct to the kitchen where the food is prepared. Shown at the top are the front and back of the label, while below are shown the back panels of the new package and the six different types, containing recipes for strawberry shortcake, dumplings, doughnuts, meat and vegetable pie.

Credit: Labels by The U. S. Printing & Lithograph Co.

DESIGN HISTORIES

Record album

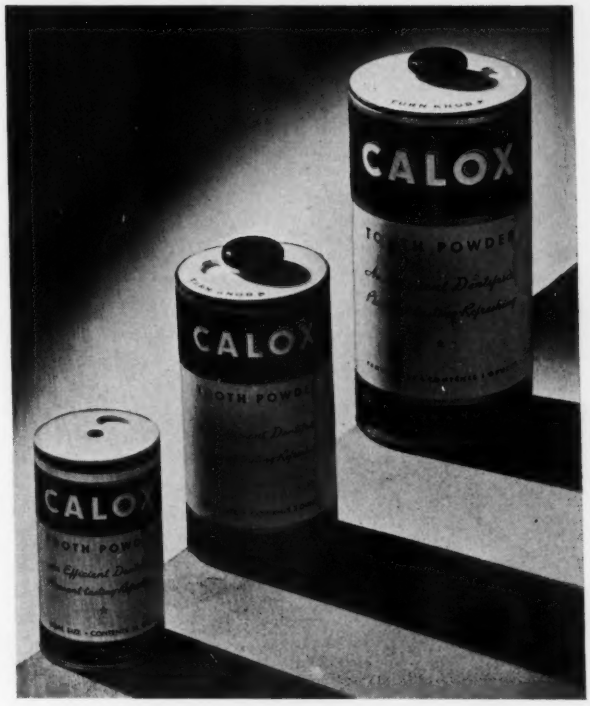
Children's records in sets were formerly packed in a master envelope and protected in transit with corrugated pads over the flat surface. The present package of corrugated board now used by RCA for their children's records not only protects the records, but it also provides the backbone for a suitable storage record album. The company reports that the sale of children's record sets has increased approximately 200 per cent after they had been combined in this album.

The album packs record sets for children so that the sets can be easily merchandised as a unit and conveniently sold not only by music stores, but also by department and other stores which might not carry individual children's records, but find that a unit of this type for children can be satisfactorily merchandised.

For the album, corrugated board with an over-all linen weave pattern is used. It is scored and folded to form three sections. The inner side of each section contains a paper envelope and each envelope contains a record. They all fit together book fashion, making for quick and easy selection of the desired record. Two-color printing and the use of simple art work make the package an unusually effective one. Many stores have found that with the display value of the children's album sets that children themselves will be attracted to them in toy departments. Color and the art work catch the eye of youngsters who are old enough to look for records to play on the home phonograph. The albums are constructed so that they may be well displayed and thus have added sales appeal.

Credit: Corrugated folder by The Hinde & Dauch Paper Co.

Tooth powder cans



Into paper have gone three sizes of McKesson & Robbins Calox tooth powder line. These sizes include the 4-oz. family size, the 2-oz. and the small, 10¢ or ¾-oz. size. Although the containers are made of paper, all the convenient dispensing features have been retained and the consumer finds that it is just as easy to use Calox tooth powder today as it ever was.

The containers are made of fibre tubes with bottoms and tops fitted into the tubes. The tops have special construction, the larger sizes varying somewhat from the small one. The 4-oz. and 2-oz. sizes have center knobs which, when turned, disclose small oval apertures in the inner disc of the top. To close, the knob is again turned and the aperture in the outer disc is covered. The 10¢ size does not have the knob, but the outer disc of the top is turned to reveal the opening in the inner disc. Between the two top discs is a tissue paper which must be pierced by the user in order for the powder to be dispensed.

The tubes are covered with a glossy paper which is resistant to dust and finger marks. The well-known maroon and silver, long associated with Calox, are the colors used. Brand name stands out in bold lettering on a maroon band around the tops of the containers and the center band in white is lettered with maroon letters, giving product name and two lines of sales copy.

All-paper containers of similar type to the Calox ones are now also being marketed by Lambert Pharmacal Co. for its Listerine tooth powder and by the R. L. Watkins Co. for Dr. Lyon's.

Credit: Containers by F. N. Burt Co., Inc.

DESIGN HISTORIES

Family whatnots

These whatnots were designed primarily to transform a group of ordinary, small unit of sale, general utility items such as gummed labels, mending tape and key tags into one attractive piece of gift merchandise. Packed in this way, items can be kept together and are always ready and all in one place when the consumer wants to use them.

The person who receives the assortment as a gift or buys it in the store is in many cases introduced to some of the maker's products with which he is not familiar. In this manner, acceptance of the line is furthered and repeat sales of the separate articles are stimulated. The whatnot provides a permanent cabinet in which tape and labels and the like may be kept, so that when the possessor finds he is out of one of the articles, he is reminded to replace it. Without a convenient cabinet or receptacle of some kind, general utility items are scattered about in the home.

The package design itself for these whatnots was copied from an old Colonial piece. The boxes of items contained in one whatnot are printed in full color with a square rigger sailing ship design. In another, the boxes are done in a sampler pattern. The sewing kit whatnot boxes are appropriately printed in gay colors simulating gingham cloth of different shades and patterns. The square rigger of the first boxed items fit together in a particularly clever way. Each one of the boxes is printed with a part of the ship. When all are lined up correctly on the tiny shelf, the complete picture of the ship is made.

Credit: Items, boxes and whatnots by Dennison Mfg. Co.

1

COSMETICS THROUGH WARS AND REVOLUTIONS

The packages, shown on these pages, appeared just as they do now from thirty to over one hundred years ago. In an ever-changing and turbulent world, they have represented their particular makers down through the years with unfailing constancy. The patterns of some of them have remained the same through wars and revolutions, through the lean years as well as the fat. To many producers today who wonder uneasily about the survival of their trade marks and their brand identities, these packages of cosmetics bear in their own unique way a rather significant history.

At the end of the 17th Century, a modest Italian hairdresser by the name of Feminis came to Cologne to establish his business and put on the market a "perfume water," now known all over the world under the name of Eau de Cologne. He bottled his perfume water under the trade mark of Jean Marie Farina—a brand name which has survived until the present day. It was handed on to successive generations of the original maker of the Eau de Cologne until in 1862, the House of Roger & Gallet became the legitimate owners of the name of the trade mark Jean Marie Farina. In 1775, Roger & Gallet brought out the original of the bottle of Jean Marie Farina Eau de Cologne, which appears illustrated on this page. The present bottle is a replica of the original bottle. Anyone looking through the pages of an old catalog, which the present head of Roger & Gallet, Guy Rocherolle, has in his New York City office, and noticing the illustration of the old bottle would be unable to tell the difference between the one of the days of the American Revolution and the one to be found on the counter of a Fifth Avenue store today. There is the same simple bottle, the same label printed in soft colors, the same kind of dispenser top.

The package came out during a time of war—1775—and it was probably among the bottles on the shelves of Parisian shopkeepers on that fatal July 14, 1789, when the Bastille was stormed. It managed to live through the Reign of Terror that began in France in 1793. Napoleon, whose biographers give him a lively interest in eau de Cologne and who is said to have refreshed himself after the heat of battle with generous sprinklings of perfume water, no doubt kept a bottle of Jean Marie Farina handy in his tent or palace, as the case might be. It was the same package, too, that came safely through the 1830 Revolution in France when Charles X abdicated and there were revolutions in Germany and Belgium, and Holland then became an independent country. Thus through many more wars and through changes in public tastes, this one package continued to retain its identity, its association with its manufacturer and to be made in France. In 1938, however, Mr. Rocherolle found Paris a city in which nothing without the swastika trade mark could exist. He promptly moved the headquarters of Roger & Gallet and the trade mark of Jean Marie Farina to America.

There are a number of other Roger & Gallet packages that have lived a long time and many of them have interesting histories, though none quite so colorful as that of the Eau de Cologne. The company was among the first to make a lip pomade. It was brought out along about 1864 in handmade fibre tubes. These were a kind of lipstick and there was very little difference between them and the lipstick con-

tainers of the present day, now that lipsticks have had to change from metal to paper, except the pomade containers never had push-up or elevator devices. A Pommade Blanche was the original product and then a little later, a Pommade Rose was created. The former appeared in a white container and the latter a pink. For years these remained in paper. Then the overwhelming popularity of metal made its influence felt and during those lush years before anyone had ever heard of priorities, the lip pomades were marketed in metal containers that were duplicates of the originals as far as color and design were concerned. As soon as World War II began to take all the metal for guns, tanks and shells, Roger & Gallet took their lip pomade out of the metal tubes and went back into paper, without a qualm. The company's product had been one of the biggest selling pomades on the market for many years, with millions of tubes being sold, and whether the tubes were of metal or paper has not appeared important to the firm's customers. Only one other change had been made in the package and that was due to the U. S. Food and Drug Act. In that Act there is the stipulation that products intended for market in the United States be labeled in English—so "pommade" became "pomade"; "blanche," "white"; and since pomade to Americans also meant a product for use on the hair, the word "lip" was added, so that there would be no doubt in the purchaser's mind about the purpose of the product.

Soap was another article that Roger & Gallet began to make in 1870. By that time, the firm's products were marketed all over the world. The small rectangular boxes with their three cakes of soap and the delicate floral decorations on the lid were popular in England and America as well as on the Continent. The soap bars always bore a small decorative band beneath which was inserted a leaflet printed in the language of the country which did the importing. A slight change has been made in the label since the 1800's. Formerly the paper wrap itself was decorated and carried all the necessary information. Now, a plain paper wrap is used and a small label, printed with the former decoration, is affixed to the box top.

From 1895 to 1905, the firm introduced its violet scented perfumes and face powders. Bottles designed at that time and fitted with glass stoppers have remained unchanged to the present time. The emphasis on simple lines in both bottles and boxes and the lack of fussy details have kept them in universal good taste since their inception. The same is true of the face powder boxes, though their design treatment was always a little more on the quaint side. Latin American women find these boxes have great sales appeal and the face powders are among Roger & Gallet's largest selling items in South America and Mexico. They are also popular in our own southern states.

Another perfume house, which has retained a number of its old packages is Houbigant, whose main office is now in New York. This house began creating fragrances in France about 1775 and became particularly well known for its delightful floral perfumes. Guy de Maupassant, the great French writer of short stories, was so taken with one of these fragrances that he wrote a story about it. Le Parfum Idéal appeared about 50 years ago in its present dress and Quelques Fleurs, between 40 and 45 years ago. The latter has had a slight change in its label. The flat, slightly oval bottle originally had a label of china or porcelain, which was tightly glued to the bottle near the neck. The china was delicately hand-painted in a floral design and highly glazed. But the craftsmanship necessary to produce these tiny works of art grew too expensive and the labels now used are machine-made facsimiles in paper. A special coating on the paper aids in keeping the appearance of the former china labels. Quel-

2

3

4

1. *In 1832 Madame Louis Gannet ordered a case of Jean Marie Farina Eau de cologne. Her order appears on the right. On the left is the present day bottle—a replica of those which were delivered to Madame Gannet over a century ago.* 2. *Java and Manon Lescaut face powder boxes.* 3. *Two Houbigant perfumes that have stayed in their original containers. The floral box is covered with fabric and has a non-critical lock—a bit of ribbon and a piece of ivory-like substance—a type of fastener used by the Chinese for many centuries.* 4. *The box for L'Heure Bleue has a paper wrap designed after an 18th century print.*

5

7

5. The only change in these boxes for soap is the label. Formerly the top was entirely covered by a floral label; now the label appears on one end. 6. South Americans like these powder box patterns very much, though Roger and Gallet have not changed them since they were first designed. 7. Packaged in paper containers over half a century ago, these lip pomades went into metal for a brief time. Now they are back in paper again. 8. Bottles for perfume which were created a generation ago have a modern, streamlined look because of their classic simplicity.

6

ques Fleurs has always been popular with American women, the heads of Houbigant report. It sells by word-of-mouth advertising from mother to daughter rather than by national magazine or other advertising media, they state.

How old is face powder? Just about as old as the Java face powder package, still to be seen on our store counters, the Bourjois people believe. But then, they go on to say, it wasn't known as face powder at all when it was first used. It was wig powder. It all came about something like this: The original Bourjois was a manufacturer of wig powder. Shortly after 1800 he established his shop in Paris. Lords and ladies of the day wore wigs which they kept white with a special soft textured powder. To give the wigs a pleasing, refreshing odor, Bourjois perfumed his powders—the first to do so the present firm believes—and, as a consequence, his powders were in great demand among the society folk of that day.

Then Bourjois noticed a little habit of the bewigged and fashionably dressed gallants and of some of the ladies. When the face would become warm in the course of a minuet, the heat of a summer day or for any reason at all, for that matter, out would come a lacy handkerchief from the equally lacy frills of the fashionable sleeves (*Continued on page 108*)

8

Paper closure has "daisy" fitted into an outer shell. An inside liner provides necessary protection.

Continuous-thread paper closure

Noxzema cream is among the first products to appear on the market with a successful continuous-thread cap made entirely of paper to replace metal. This type of cap is one which will be seen soon on several other products.

It is made in two parts—an outer shell formed on round-box-making machinery and an inner part called a "daisy" because of its shape when flat before it is put into the outside shell. The thread is embossed in the "petals" of the "daisy." When this piece is inserted into the outer shell, the "petals" fit closely against the wall of the shell and the thread becomes continuous. The thread is not loaded. A liner inside the cap provides the necessary protective and sealing requirements for the jar.

This new cap represents the culmination of an entire year of experiment by Noxzema Chemical Co. and the suppliers of glass and closures with whom they worked. The company anticipated a shortage of metal at the end of last year.

"Although our anxiety was not shared by many who should have had an insight into the actual situation," a company spokesman said, "it was decided to search for non-metallic closures which would be applicable to our needs."

In cooperation with their glass supplier they cast around for substitutes, first among metal closure manufacturers and then paper box manufacturers. During the A.M.A. Packaging Institute meetings last spring, they canvassed the displays of paper box manufacturers and put this question to all: "Does your company make a paper closure which can be used on glass, and if not why not?" Some of the exhibitors answered with a quick and surprised "no." Some with a long and sympathetic "no" but no one said "yes."

Then back in Baltimore where the company is located, they began receiving samples of paper closures which looked pretty good. These were not entirely right, but showed that technical problems had been surmounted. All that remained to be done was to iron out usual corrections and changes to suit a particular product.

Noxzema is an oil-in-water emulsion. Therefore, the efficacy of paper caps for this purpose was dependent upon their ability to retain moisture under high limit of vapor permeability to which closures would be subjected during their market life and also upon their practical application to the company's own packaging procedure.

It was necessary to determine what neck ring tolerance of glass jars was permissible with paper closures and what difference between cap thread diameter and neck ring diameter was permissible to give (*Continued on page 118*)

1

2

PACKAGING PAGEANT

1 Ten-B-Low is an ice cream mix which changed from a can to a glass jar, retaining its familiar identity by means of its new label. Although jars are standardized, brand individuality is kept alive through distinctive labels. The label is a wrap-around, but it is narrow enough to permit the product to be seen through the glass. In order to keep the consumer from forgetting about the brand, additional recipes are printed on the back of the label. The housewife is instructed to cut along a vertical line to remove the label to find them. Label by The U. S. Printing & Lithograph Co.

2 Cakes of soap for the man in the armed forces come packed in a box with an eagle-and-shield illustration on the lid which repeats the design used on the soap. Lightfoot Schultz also provides the purchaser with a handy mailing box which has convenient spaces marked for names and addresses.

3 Bottle for Pennzoil Motor Oil is a new development. It is amber in color, weighs but 15 ounces and is 10 in. high. It is easy and economical to fill, seal, label, pack and ship. Contents can be drained direct from the bottle into the crankcase of practically all models of cars, eliminating the need for funnels or other critical metal accessories for filling crankcases. Closure is tamperproof and provides a dependable, airtight, leakproof seal requiring a hook type opener to remove. Removal of the cap damages it in such a way as to prevent any possible re-use of it. The cap is made of blackplate, employing a non-critical composition cork gasket as the sealing medium. Bottle and closure by Anchor Hocking Glass Corp. Label by Derrick Publishing Co.

4 A minute-man surrounded by a circle of stars is the decoration for a hexagonal, brightly printed tight-wrapped box for Golden Bear assorted cookies. A label on one of the sides has the amusing bear trade mark of the company together with a listing of the product ingredients. The package was designed as a gift for men in the service and a corrugated box for use in shipment accompanies the cookie box. The corrugated container is printed with an eagle above a shield-shape outline for name and address of recipient. Corrugated box by Grand-City Container Corp. Cookie box by New Deal Paper Box Co. Wrapper by Capitol Paper Co.

3

4

5

5 In keeping with the general trend towards simplicity and streamlining, Glenmore Distilleries Co. has redesigned the label of its popular Silver Label brand. The picture of the old Colonel is placed in a medallion above the label proper. The name Glenmore is centered in the label and is the spot of emphasis for the bottle. Label by Consolidated Lithographing Co. Bottle by Owens-Illinois Glass Co., Anchor-Hocking Glass Corp. and Obear-Nester Glass Co.

6 Very appropriate at this time when everybody is talking about liberty that Nash-Underwood, Inc., should bring out this Liberty Bell jar for mustard. The jar is a replica of the original Liberty Bell, even to the crack in the bell. The closure further carries out the patriotic idea and is in red, white and blue. A slot in the jar cap provides an opening through which coins may be dropped when the jar has been emptied of mustard. The jar may thus be re-used for a bank for purchases of War Stamps or as a handy place to keep change. Jar by Sterling Glass Div., Warfield Co. Closure by The Aridor Co.

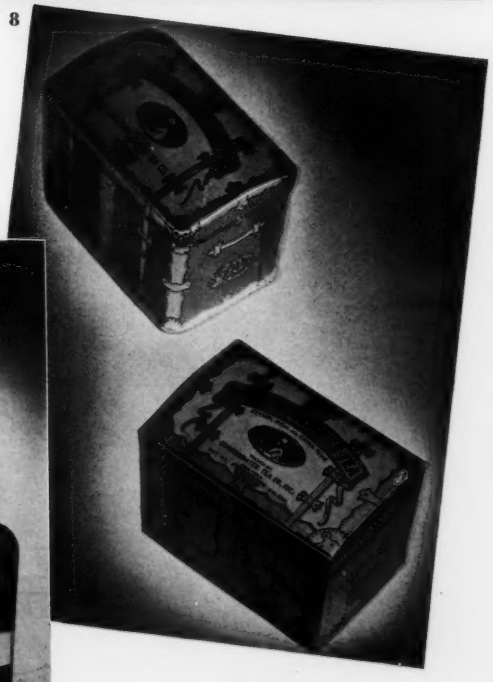
6

7 Dimling's package for the man in the army, navy, and marines is a corrugated box with double walls for adequate protection during shipment. The box is die cut in one piece. The box is securely closed and sealed with a strip of adhesive tape. To open the box, the tape is cut and the front flap is pulled out and lifted. Two tabs on either side of the front flap fit in the open space between the double side walls to hold the top closed. A checkerboard is placed on top of the assortment and serves as a decorative paper as well as a real checkerboard later. Corrugated box by Keystone Box Co.

7

8 Another company to save tin is the Consolidated Tea Co., Inc., of New York, which has replaced its tin tea boxes with paperboard cartons. The interpretation of the chest in paperboard was made as convincing as possible in an effort to preserve the identity of the novel "Swee-Touch-Nee-Tea" packages. Designed and made by Robert Gair Co., Inc.

8



9 Another transition from cans to glass is represented by these three sizes of Gulfspray insect killer. The cans had labels lithographed directly on the metal with the color running completely around the cans. New labels for the bottles are replicas of those on the cans, but they cover only the front and back panels. Screw-on metal caps are used for closures for the sturdy, broad base bottles. Bottles by Ball Bros. Co. Caps by The Aridor Co. Labels by American Colortype Co.

9

1918

Above. Beef shipped the old way was bulky, hard to handle. Here's how fresh beef was prepared for the army in 1918. Whole sides were quartered and shipped to army camps. Below. In 1918 it took three cars to carry 40,000 lbs. of beef.

1942

Above. Now it's boneless beef—creation of the U. S. Quartermaster Corps working with Armour and other meat packers. No bones or waste goes to the army today. Below. One refrigerator car will carry 40,000 lbs. of boned beef in boxes.

Boneless meat—new weapon for U. S. fighters

The development of mechanized warfare on widely separated fronts has complicated tremendously the problem of supplying the fighting forces with nourishing foods and other supplies needed to maintain bodily vigor and morale. During the Civil War, armies bought their beef on the hoof, slaughtering the animals to fit their dietary needs. World War I brought vastly improved methods of supplying meat and other foodstuffs to soldiers, but the feeding techniques of the last great conflict are inadequate to fill the demands of the present war. Today masses of soldiers are whisked over great distances by fast trucks. Parachute troops are dropped behind enemy lines without hope of outside supplies for an indefinite period. Bitter aircraft duels at dizzy altitudes are fought at speeds approximating 400 miles per hour. The changing techniques of warfare have made new and better foods imperative and packaging has played a vital role in their development.

The American soldier is the best fed in the world today—and much better fed than the Doughboy of 1918. Cornerstone of the U. S. Army diet is meat—a pound or more a day for each man. The importance of scientific packaging of this diet for the armed forces has been vividly portrayed by Armour & Co. in a 28-page brochure, "Food for Freedom," chronicling the role of the American meat packing industry in the war effort.

Long years of packaging research and ceaseless improvement of packaging materials, which have given today's consumer an almost limitless variety of foods in convenient, easy-to-serve form, are now making it possible for American soldiers and our Allies to have the kinds of food they need in the proper quantities and with the requisite protection against rough handling, unpredictable weather conditions and other complicating factors.

In a current national advertising campaign, Armour & Co. has been featuring the American soldier, sailor and marine as the "best fed fighters in the world," reproducing typical military menus and showing the prominent part played by meat and meat products in the modern military diet. "Food for Freedom," which is keyed closely to this campaign, devotes considerable space to the newly developed packaged boneless beef, described as "the new streamlined fresh meat that saves shipping space and handling, goes anywhere fast!"

In 1918, entire sides of beef were quartered and shipped to Army camps. The dressed beef from one good steer weighed around 600 lbs., but after carving by even the best army cooks, it yielded only about 420 lbs. of meat. The remaining 180 lbs. consisted of bone and waste. As used in the last war, regular dressed beef was so bulky that three refrigerator cars were needed to carry enough meat for 40,000 men for one day.

The U. S. Army cook of 1918 spent hours boning beef. Cutting the bones out of a 150-lb. quarter of beef without

electric saws and special equipment was a tough, tedious task. It was done in field kitchens near the front and chances for exposure to contamination ran high. When the beef was finally cooked and served, new difficulties arose. Because an entire quarter often had to be used for one meal, some men drew more tender portions than others. One soldier might be eating shank meat while the man at his elbow had tenderloin. These inequalities and their resultant dissatisfaction could scarcely be avoided under the World War I method of supplying soldiers with fresh beef.

With packaged boneless beef, now provided in tremendous quantities by Armour and other packers, it's a different story. Developed in cooperation with the U. S. Quartermaster Corps, boneless beef is free from waste. It consists of top quality meat, boxed and frozen. It requires 60 per cent less space than an equivalent amount of usable fresh beef in 1918—an important consideration in these days of deadly submarine warfare, when every cubic foot of shipping space must be made to count. A single refrigerator car can carry the same amount of edible packaged boneless beef—40,000 lbs.—which could be handled by three cars in World War I. Also, in this new form, the meat arrives at camps and field kitchens in better condition, fresher and tastier than in 1918.

Instead of struggling for hours with bulky quarters of beef, today's army cook merely opens a box of boneless beef and slices it with a knife. Armour's boneless beef is packed in three types and boxes are labeled accordingly, so that company cooks can serve every man the same. Fifty per cent of the beef is for roasts and steaks, 25 per cent for stews, pot roast, etc., and the remainder is ground and shaped into loaves for hamburgers and meat loaf.

Designed for distribution to Armour stockholders and employees, retail food dealers and associations, and to civic, military and educational leaders throughout the country, "Food for Freedom" frankly explains why wartime shortages of certain popular canned items must be expected.

"After Uncle Sam, you come first . . . War orders and priorities have brought problems of staggering complexity to Armour's canned meat department. In place of the case lot orders of peacetime customers, government orders call for *millions of tins!* Today, Armour's Star canned meats (in ration form) work side by side with U. S. fighters in tanks, planes, ships and jeeps. Vacuum packed in larger tins, they are going to feed soldiers, sailors and marines in U. S. training camps—being shipped abroad to feed our Allies.

"Moreover, restrictions on tin have added to the headaches of Armour's canned meat men. They cannot always give domestic customers all the canned meats they order. Government tin priorities are granted solely with the view of conserving meat—preventing the loss of certain meat items that would be wasted if not canned. Foods that can be prepared at home from dried products (noodles, beans, etc.) are denied tin. This is why many popular star items that used meat in combination with other foods had to be discontinued for the duration."

Within the limitations imposed by wartime necessity, Armour continues to supply many well-known meat products to the civilian trade. Some of their most popular canned meat products, such as cooked boneless picnic, smoked pork loin, boneless whole cooked ham, canned sliced bacon and chili con carne, "have given up their meat and tin for the duration." The company also points out in its advertising that temporary shortages may occur in certain specified items whose production has been restricted to conserve meat for the armed forces and tin for the war effort. Some of these products have been reduced to 75 per cent of Armour's 1940 pack, several meat spreads to 50 per cent and a few other items to only 25 per cent of the 1940 output.

Among the canned and glass-packed foods which Armour believes may continue to be available to "fighters on the home front" are Treet, the company's new spiced pork product, chopped ham, potted meats, tongue and tamales in glass, dried beef in cartons and glass, 6-lb. cans of various pork products, and such vinegar pickled items as pigs feet, tripe, etc.

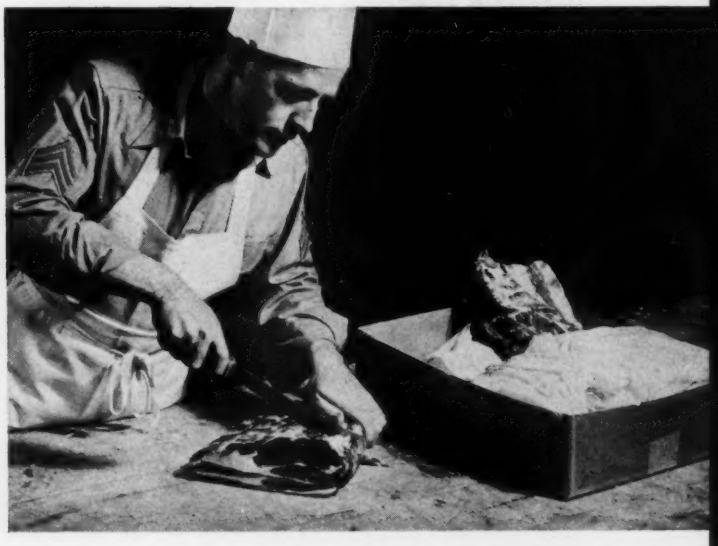
Emergency rations, on which the soldier must subsist after he has fought his way into enemy territory and cut himself off from further supplies, depend entirely on proper packaging for protection against the elements, possible exposure to deadly gases, and rough handling. In 1918, the quartermaster established field kitchens close to front-line trenches for

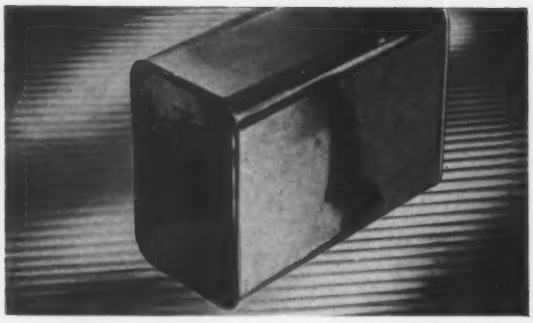
1918

Army cooks spent hours boning beef. It's a slow, hard job, cutting the bones out of a 150-lb. quarter of beef by hand.

1942

They haven't time today—they just slice it. Army cooks merely open a box of boneless beef and slice it with a knife.





1 2 3 4 5

1. *Bacon for the armed forces is shipped in 14-lb. vacuum packed tins. Thus men in the service get this bacon as fresh and flavorful as that they get at home.* 2. *Ration C—the full day's C Ration weighs 5 lbs. 2 oz., offers 3,250 calories. It consists of 6 tins—2 for each meal.* 3. *Ration K—parachutists, advance tank units, aviators carry these meals in their pockets. Tinned meats are a part of this ration.* 4. *Meats, vacuum packed in larger tins go to feed service men in U. S. training camps and our Allies throughout the world.* 5. *To give its men hot meals even in the field, Quartermaster Corps tests "vest pocket" stove.*

baking bread, cooking meat and serving hot meals to the fighters. Today, "soldiers in jeeps, tanks and trucks speeding miles ahead of their supply depots must carry their meals with them." Armies move too rapidly to be able to have complete kitchens and cooking equipment taken along to the front lines.

The principal emergency rations developed for U. S. Army use in the present war are designated as Ration C and Ration K, which were worked out by the Quartermaster Corps in collaboration with leading food processors to meet demands of specific situations. Comprised of highly concentrated foods, in which meat plays a prominent part, the rations are actually pocket-size, appetizing meals in themselves and do not have to be supplemented with other foods.

Armour & Co. delivered a large share of a recent army order for millions of vacuum packed tins of Ration C. A full day's component of this battle-proved ration, weighing slightly over 5 lbs., supplies 3,250 calories. It consists of six tins—two for each meal. Three of the tins are identical in content, supplying five enriched biscuits, soluble coffee, sugar and hard candy. Remaining tins provide the soldier his meat courses for breakfast, dinner and supper, including meat and beans, meat and vegetable stew and meat and vegetable hash. Each contains 50 per cent meat.

These foods, so prepared and seasoned that they are appetizing even when eaten cold, are even more tasty when served hot, and the Quartermaster Corps has been experimenting with an ingenious "vest pocket" stove which would

6

6. As far as can be seen, the canned meats shown at the right will continue to be available at retail stores for the civilian shoppers. 7. These have given up their meat and tin to the government and are thus being discontinued for the duration.

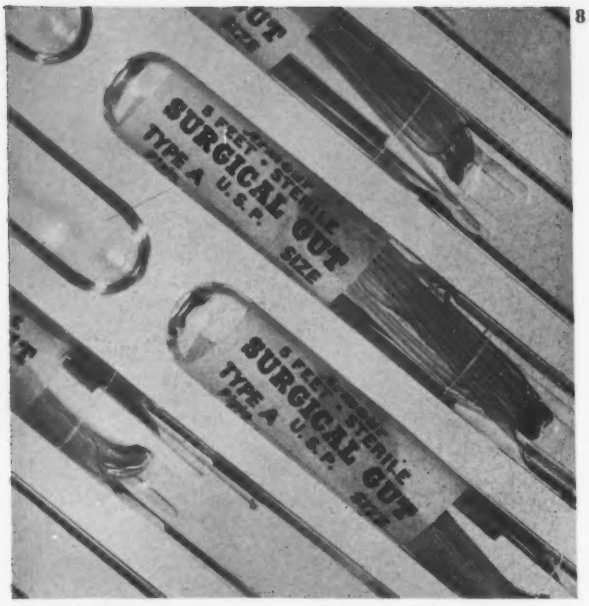
enable the soldier to heat the ration directly in the can by means of a small tin of "canned heat." The amount of heat supplied by a single small tin of this substance is sufficient for a pint of coffee or a steaming hot meat meal, it is reported.

Ration K, an even more highly concentrated assortment of foods, is carried by advance tank units, aviators and parachutists, enabling them to eat well even when working behind enemy lines. Armour is a major supplier of tinned meats and cheese in these rations, whose three compactly packaged units weigh but 32 oz. and supply 3,726 calories. For the breakfast unit of this ration, Armour supplies a $3^1/_2$-oz. tin of veal and pork loaf meat, while a $3^1/_2$-oz. tin of processed cheese is the company's contribution to the dinner unit. For supper, the third unit of the ration contains, among other energy-packed items, a tin of pork luncheon loaf meat, large numbers of which are being packed by Armour. Men on field maneuvers have lived exclusively on Ration K for six consecutive days, maintaining their normal efficiency on this diet.

Bacon, as might be expected, is a favorite food among the fighting forces. Armour's bacon for U. S. fighters is shipped in 14-lb. vacuum packed tins, which bring this traditionally popular meat to the soldiers and sailors in U. S. camps and on the fighting fronts overseas as fresh and flavorful as they formerly enjoyed it at home.

Tremendous quantities of Armour packaged products are now being shipped through Lend-Lease channels. Combined Army, Navy and Lend-Lease requirements are currently absorbing more than 75 per cent of the company's total canned meat production, with 53 per cent going to Lend-Lease alone. Six-pound vacuum cans of pork luncheon meats and other loaf meats are among the principal items in this category. Forty-three per cent of Armour's total pork production (exclusive of lard) goes to the Army, Navy and Allies—36 per cent goes for Lend-Lease shipments alone.

7



8

9

10

From April through September 1941 two-thirds of Armour's total lard production went through Lend-Lease channels. Some lard shipments abroad by American packers have been accomplished without the necessity of supplementary refrigeration on shipboard by freezing the boxed lard prior to loading and lining the ship's hold with the packed wooden boxes. The frozen lard, insulated with a special technique developed by the American Meat Institute, supplies its own refrigeration during shipment and also guards other perishable products against spoilage. With this ultra-modern method, maximum utilization of shipping space is attained.

Powdered eggs for armed forces and Allies are another accomplishment largely made possible by new packaging techniques, and Armour is playing a leading role in supplying this food product.

"An American soldier is entitled to one egg a day," the company explains. "However, in some of the barren countries where Americans are fighting, a fresh egg is just a legend, but army field kitchens still serve up piping hot, delicious scrambled eggs . . . thanks to a new food 'find'—fresh eggs in powder form!"

The principal wartime advantage of powdered eggs is their ease of keeping and handling. Requiring no refrigeration, they keep indefinitely and are ready for instant use simply by adding water. So compact is the product that one 5-oz. package of powdered eggs is equal to a dozen fresh eggs in the shell. One shipload of powdered eggs going to England is the equivalent of six shiploads of fresh eggs in the shell.

Prior to Pearl Harbor, Armour had done a great deal of developmental work with this new product, building special plants to produce it and preparing to supply powdered eggs in large quantities to the civilian trade. But when war came to America on December 7, 1941, powdered eggs were rushed instead to Uncle Sam and to our fighting Allies. After the war, the company plans to make these products available for civilian distribution.

Not with food alone is Armour serving America and her Allies in the present emergency. The company packages pharmaceuticals and other by-products—many of them entirely unfamiliar to the general public—but all are helping to save American lives on the fighting fronts. Among them are such items as surgical sutures, spun from minute strands of carefully selected gut, sterilized and sealed in sterile glass tubes.

Yellow bone marrow, used to defeat "blood starvation" in cases when the sulfa drugs so vital in combating grave infection result in complications, and suprarenalin solution, a glandular extract having many important uses, are other Armour Laboratories products playing an important part in the war. All of these must be carefully packaged to preserve their potency and to protect them until they are used. These and other Armour products, backed by a history of efficient peacetime use in American hospitals, are helping to maintain the health and life of our soldiers, sailors and marines.

***8.** Surgical sutures—thin threads for surgical use are spun from many minute strands of carefully selected gut, polished, sterilized and sealed in sterile glass tubes for shipment to the fighting fronts.* **9.** *Bottle of yellow bone marrow. When the sulfonamide drugs are used to combat grave infection, they sometimes cause a kind of "blood starvation." This bone marrow helps keep the patient's "blood picture" normal.* **10.** *Ampoules of suprarenalin solution—this glandular extract has many important uses. Surgeons employ it to extend the effect of local anesthetics.*

NEW PACKAGING DEVELOPMENTS NOT RUMORS

{Burt developments are manufactured in millions}

Because packaging has been beset with restrictions, packagers have become receptive, too receptive, to rumors of substitutes and to unsubstantial claims.

Because of the failure of a few irresponsibles, all supplies have suffered to a greater or lesser degree.

Burt developments are definitely *not rumors*. Every Burt Package and closure you have read about has had previous testing and establishment of adequate manufacturing facilities. Each of our developments is being manufactured for and marketed by reliable firms.

Our paper lipsticks, powder dispensers, closures and compacts are being used by leading firms in the cosmetic, drug, dentifrice, toiletry and other fields as their actual consumer packs.

We are manufacturing these items in the *millions*, each month, on specially designed automatic equipment.

F. N. BURT COMPANY, INC.

500-540 SENECA STREET, BUFFALO, N. Y.

NEW YORK CITY - PHILADELPHIA - BOSTON - ST. LOUIS
ATLANTA, GEORGIA - CHICAGO - CLEVELAND - CINCINNATI -
NEW ORLEANS - MEMPHIS - MINNEAPOLIS - KANSAS CITY

DANVILLE, CALIFORNIA (Near San Francisco)
A. G. Spilker, P. O. Box 126, Telephone: Danville 27

LOS ANGELES: 1709 West 8th St.—Telephone EXposition 0178

CANADIAN DIVISION: Dominion Paper Box Company, Ltd.
469–483 King Street, West, Toronto 2, Canada

Gift boxes for the axis

by G. T. Kellogg

Logistics is a brand-new word—it's primarily an Army word—and roughly it means the science of getting the proper supplies to the right troops and organizations at the strategic time, or before.

Packaging plays a tremendous role in logistics. There are hundreds of examples, but for the subject of this article, let's look at cartridge boxes, cases and chests. And particularly, the new packaging of .30 caliber and .50 caliber ammunition for ground machine gun use is in point.

The tactical requirements of mobile warfare, that ammunition chests be expendable, moisture-proof, non-inflammable and extremely rugged, have forced a change from wood to steel. Recently, such boxes for caliber .30 and caliber .50 belted ammunition have been put into production and are being loaded prior to issue to troops. They can be stored and used wherever machine guns are employed on ground mounts and in armored vehicles.

There is a most interesting story behind the development of these containers. Beginning with the last war, when machine guns and automatic rifles were first used to any great extent by American troops and continuing through almost to Pearl Harbor, the armed forces have used many different, unrelated cases for ammunition.

1

In the Infantry, for example (and it's the best example), they were using an old-type wooden chest of considerable weight which was considered an accessory to the machine gun mount. Such chests were loaded at ammunition service centers in the rear and when the 250 rounds they held were shot up, they had to be returned for reloading.

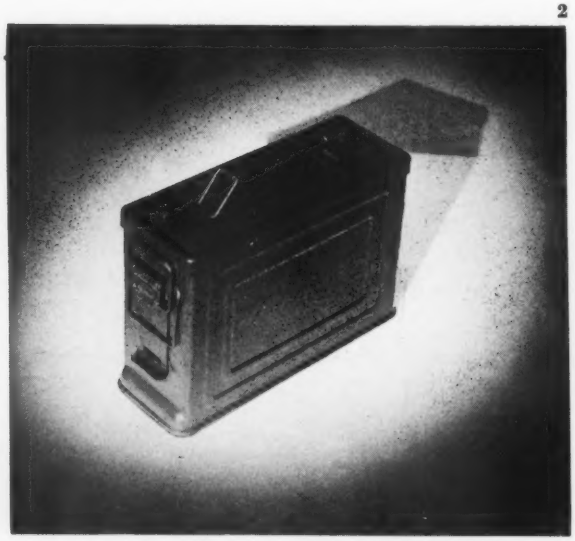
This method of handling ammunition would not be too objectionable under conditions of fixed trench warfare, but with the advent of the "fluid" type of modern warfare, ammunition supply of this sort became impracticable.

The old wooden chest, made of good oak, was approximately 8 by 4.5 by 12.75 inches. It was not water-tight.

During the days between the last World War and the present conflict, new methods of warfare have developed. Among them is tank warfare. Until recently, there were more than a dozen types of caliber .30 containers required in tanks. They held anywhere from 100 to 250 rounds of ammunition per belt and the cases, or chests, out of which the cartridges were fed to the gun were in about all sizes—"U" shaped and whatever other shape adapted itself to the structure of the tank. As a result, ammunition belts had to be cut, machine guns weren't able to fire their full burst and the tank people were burdened with the supply and maintenance of a large variety of ammunition containers and, if lost or damaged, there were real headaches in getting the proper replacements, since these boxes were designed as a part of the tank itself.

In those days, prior to the present war, this .30 caliber ammunition was sent in paper cartons packed in large wooden boxes from manufacturing arsenals to Field Service. Then it had to be unpacked and belted by hand-operated loading machinery into 250-round belts. The primary reason for this was that the armed forces weren't using ammunition in sufficient quantity to justify the "freezing" of large amounts in especially packed forms. Then, just prior to the current war, the production and use of ammunition

2



stepped up, and there was a greater demand for the supply of ammunition packed in the final forms for immediate field use.

Following receipt of many requests from the armed forces for development of a uniform, pre-packed container, the War Department initiated a project authorizing the Ordnance Department, Small Arms Development Branch, to develop such a package. The Bureau of Standards was called in first of all and asked to put Ordnance personnel in touch with the trade associations of the various container industries—this was in the summer of 1941. The Bureau of Standards was most cooperative, contacted the trade associations, arranged for conferences with the container manufacturers and otherwise helped out.

One of the first conferences arranged was with the tin can industry and later ones were had with the manufacturers of fibreboard boxes and other container makers. By that time word had got around the packaging industry that the Ordnance Department was looking for help and the container makers responded. No longer did the Ordnance Department have to go out looking for manufacturers; the container makers came to Washington to hear what the problems of the Small Arms Development Branch were.

In the course of conferences which were held on this specific project, the fibre box makers, wooden box manufacturers, the metal stamping industry, the can industry, producers of other waterproof material, including papers of various kinds, and almost all the other container manufacturers participated.

Specifications were set up, revised, expanded and the characteristics of model boxes noted before the Ordnance Department set up its final maximum size and performance specifications.

Then dozens of samples started coming in—this was in the fall of 1941. About the same time, Ordnance placed development contracts with a few manufacturers who had presented interesting samples, to make containers for testing. Six different types of containers were manufactured and sent out to the field for service tests by the principal using arms—the Infantry, the Cavalry and the Armored Force.

In the course of the tests, a multitude of recommendations for further development was made. Deficiencies in the test models were noted as well as many good features. The need for a hinged cover which could be easily removed was seen—a cover which would be replaceable and which would reseal the can when replaced; a handle attached to the cover was recommended; paraffin-covered fibreboard boxes were found to be unable to withstand the rigors of field service—they sprung leaks; and the Armored Force noted that the test samples were still too large to permit wide use in current models of combat vehicles and recommended that the size be reduced to the absolute minimum which would hold the 250-round belted ammunition.

None of the first models was designed so that it could be fitted to the tripod mount of the machine gun—it hadn't been specified at first, but it was later determined to be a desirable characteristic. So, one of the developing companies devised an ingenious latch on the side of the can, permitting it to be fastened to the tripod mount.

Ordnance personnel noted all these recommendations and deficiencies and as a result, the new box was developed. It is made of light-gauge steel, but still strong enough to stand extremely rough handling, water- and air-tight, holding the standard load of 250-rounds, belted, expendable and with the other characteristics desired.

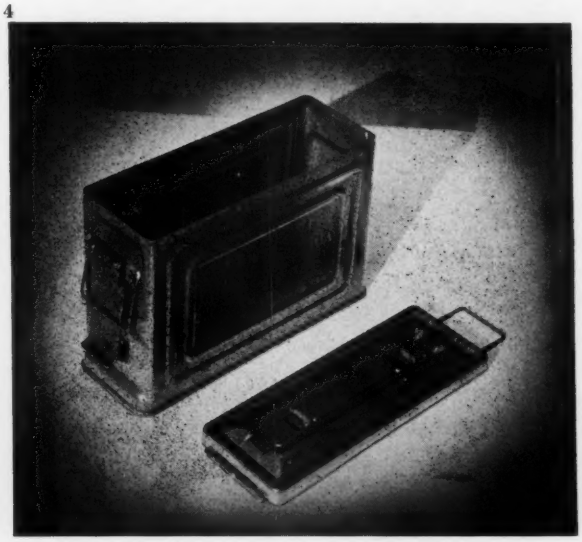
The new package—Caliber .30 Ammunition Box, M-1, the Army calls it—is $3^{3}/_{4}$ in. wide, 11 in. long and $7^{1}/_{4}$ in. deep. It can be filled at the arsenal at which the cartridges are made, sent to the field in "wrap around" cases, four to the case, and is made instantly available to the machine gunner for whom it is made. It saves some 32 per cent on storage and shipping space alone.

As development of the new package proceeded, Small Arms Branch maintained close coordination with the people who developed tanks in the War Department and when the size of the container was finally determined, instructions were issued by the Tank Branch that in development of all new combat vehicles space should be provided for the stowage of these boxes and their use in presenting ammunition to guns. All

1. Photo shows how the new "can" is fastened to the side of the gun mount and how the hinged top may be left on or taken off. 2. Caliber .30 M-1 ammunition box completely assembled. 3. Same box showing the cover open. 4. Box with cover detached. Box has been designed for greatest efficiency and functional convenience on the battlefield.

3

4



new tanks are being constructed with this provision.

Following standardization of the container, contracts for many millions were awarded the following firms: American Can Co., Owens-Illinois Can Co., Reeves Steel and Manufacturing Co., and Crown Can Co. These companies are making them now—not by the hundreds, not by the thousands, but by the tens of thousands per day.

Let's take a look at the specifications for the new can, as developed after long and arduous tests; the reasons for them and how they have been met:

1. It must be completely air- and water-tight under all climatic conditions, and during an indefinite period of storage. In modern warfare, this is a prime requisite, since much of today's action is amphibious in character—landing parties must go ashore, laden with their arms and ammunition, set up beachheads, and there can be no stopping for waterlogged ammunition.

On the other hand, troops may be expected to go ashore to reconnoiter, leave their ammunition under water for a couple of days and come back later to pick it up. Also, they might conceivably cache the cans of ammunition in a stream until ready for use.

2. It must be sufficiently robust to withstand rough usage when transported as an individual battle container. Although it is made of light-gauge steel—23-gauge body and 18-gauge cover—this strength is obtained by ingenious ribbing and embossing by which the strength of a light-gauge metal is increased. It is sealed around the bottom by a conventional can double seam, and another double seam (or seam weld, in some cases), closes up the side of the can. These joints are, of course, water-proof.

3. When the box is opened, the top must be capable of being easily removed or remaining hinged to the box. This requirement has been met by fitting the box with a spring hinge. The top remains on it when desired, but a smart blow with the heel of the hand will take it off to permit its use in the confined quarters of the tank.

4. It must be attachable to the machine gun tripod mount. How this was accomplished has already been described—by designing the hasp which clamps the lid to the box so as to engage securely a bracket on the mount.

5. It must be equipped with a carrying handle which will not interfere with stacking of the boxes. The new box, therefore, has a steel handle, fitted into an embossed depression in the lid.

6. It should be easily opened without tools. The box is opened by a quick yank on the hasp, described above, and may be reclosed and resealed if desired, just as easily.

7. It should be capable of being reclosed and resealed and should continue to be transportable by means of the carrying handle.

8. Materials of which it is constructed should be termite-proof and non-combustible. The steel construction takes care of both these specifications.

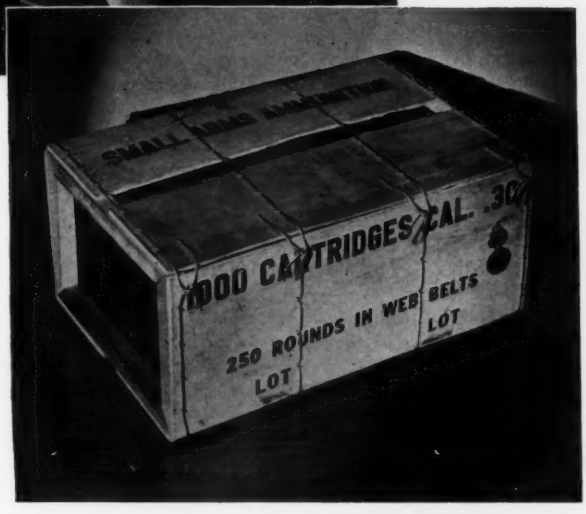
Other specifications relate to size, and weight—the new box weighs about 2.5 lbs., compared with 5 lbs. for the old wooden, non-waterproof container.

Although this requirement was not specifically mentioned in the specifications, the adaptability of the box to mass production methods was always uppermost in the minds of the Small Arms Branch as it went through the developmental process. Because of the necessity that it be classed as "expendable," it was desirable that it be manufactured in large numbers—by the millions, in fact—and this could only be done by mass production methods. Some of the test cases originally submitted were rejected for lack of this one characteristic.

For the closures of the new cans, a gasket or compound has been inserted in a groove in the cover. A relatively small amount of critical material is now being used in this water-tight seal and it is expected that in the near future materials will be made available for this gasket of an entirely non-critical nature.

Now that the boxes are in quantity production, they are being shipped by manufacturers to Ordnance depots for loading and supply in ready-to-use form to using troops. It is expected that a policy may soon be adopted of sending the boxes direct from the manufacturing plant to arsenals

These Caliber .30 M-1 ammunition boxes are being given the submersion test. Both the bodies and covers are being submersion tested.



Above. Here is the packing line where the ammunition boxes are being packed into cases ready for shipment. Below. Four of the boxes are placed in wire-bound crates.

where ammunition is made—both private and government-owned—loaded there, and shipped, ready for reshipment, to combat troops.

A container for similar tactical employment of 100 rounds of pre-packed belted caliber .50 ammunition for ground machine gun use has also been developed and is now in production. Ordnance has named this container Ammunition Box, Cal. .50, M-1. Its characteristics are very similar to that of the caliber .30 box, but it differs somewhat in construction, lending itself better to production by metal stamping facilities than by the can industry. It is made in three pieces, with gas-welded corners and an alternative method of construction has been approved, consisting of a wrap-around seam-welded body, with a seam-welded bottom.

Regarding the policy of the Ordnance Department in declaring the containers (both .30 and .50 caliber) to be expendable, this does not mean that it is obligatory that they be thrown away, although their cost, by mass production methods, is actually a small fraction of the old wooden and aluminum chests which lacked most of the characteristics of the new boxes. There is nothing to prevent their re-use as cartridge containers or for other purposes where a watertight package is desired. The Army has salvage squads in the field all the time, picking up usable equipment and while the empty containers may not be worth valuable stowage space in vehicles or ships used to carry more essential cargo, it is conceivable that they may be returned to ammunition depots for reloading, over and over again.

These new boxes are just one of the many ways by which conservation has been achieved by redesign, time and costs saved and efficiency increased by the devising of new methods. In a booklet called "Tremendous Trifles," put out by Army Ordnance, there is a brief general review of where and how savings in critical materials and in time have been accomplished and how production has been enormously increased. The competition of war, the booklet explains, now resembles the competition of business in which year after year individuals and entire industries have had to find new materials, conserve by redesign and devise new methods in order to survive. In a total war attention has to be given to every trifle, and every trifle must now become tremendous. Now, a huge tremendous trifle program is under way in our war competition, in which critical materials, critical machine hours, time and money are being saved. Packaging plays a vital part in these savings. Thus, a new and more efficient method of handling ammunition becomes one of the tremendously important trifles of this war.

Many ideas are developed in war and in peace which are ahead of their time. Some are allowed to die, but the originators or developers of others stick to them until their day arrives or until resistance to them is finally overcome. Many of the conservation steps recorded in Army Ordnance are old ideas that have been kept alive by the persistence of their originators. Others have grown out of the present urgent necessities. Army Ordnance has recommended to Ordnance and to industry that minds and files be searched for all ideas that have been mislaid or forgotten or which were ahead of their time. Perhaps, some of them can be put to work to replace costly materials, save time that will mean hours of additional production and lift the burden from overloaded tools.

Lighter fluid in bottle with plastic spout

In converting from metal cans to bottles in order to save metal for the war effort, the makers of Energine Lighter Fluid were faced with the difficulty of maintaining convenience to consumers in the use of the product. Energine Lighter Fluid had previously been packaged in 3-oz. and 8-oz. cans, equipped with a lead spout. The spout was sealed with a thin film of lead, which had to be punctured with a pin by the consumer at the time of use. It was also equipped with a re-seal cap. In the manufacture, the cans were filled and the complete spout sweated to the can.

The spout was necessary for convenience in use of the product, because cigarette lighters, particularly the pocket type, have a comparatively small aperture through which the lighters are filled. Because of the nature of the fluid—that of high volatility—it is extremely difficult to pour from a wide neck can or bottle. This, combined with the small size of the filling apertures of lighters, meant considerable wastage and annoyance in the use of the fluid if some means could not be found to replace the metal spout in the process of conversion to glass. Furthermore, a complete seal was necessary in shipment because of fire regulations. It was decided that a thermoplastic closure might be the answer. In designing the cap, experiments were made first with hand-made models in order to try out some of the features of this closure. The proper clearance at the top of the spout had to be obtained so that the breakoff tip would break the hole clean for free pouring. The cap which was finally arrived at accommodates a pulp and vinylite liner. Special attention was also given in the tapering of the spout in order to take care of the small friction-fit cap which goes on the top of the spout.

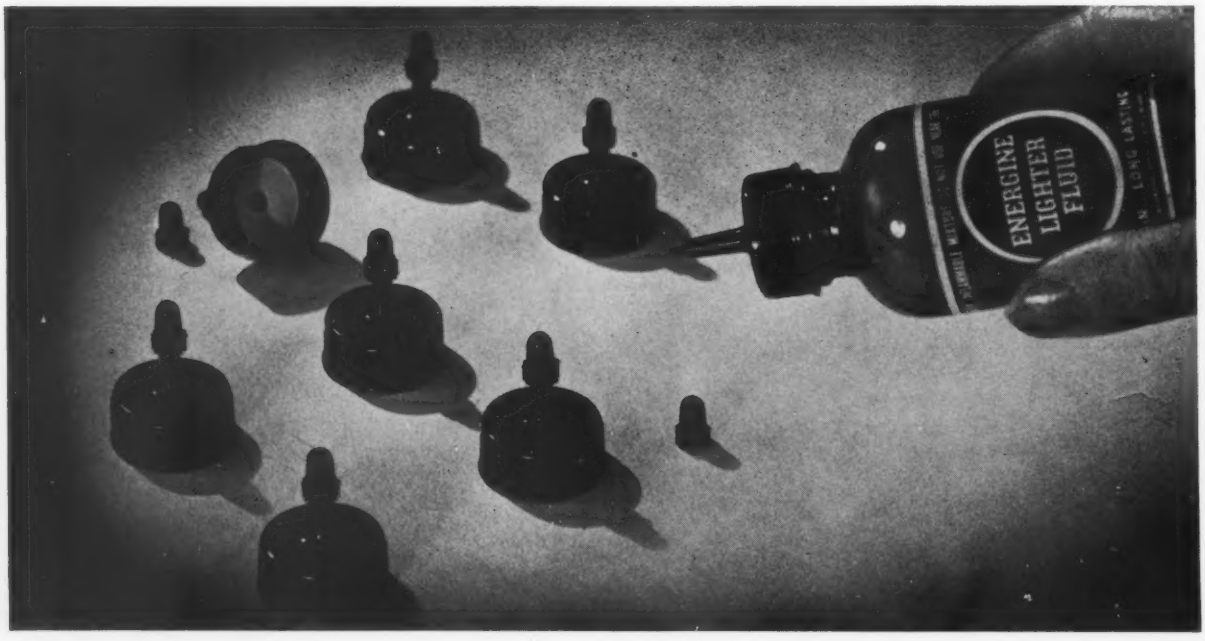
When the model was completed which incorporated all the necessary features for a satisfactory closure, experiments were begun with various types of plastic materials. It was found that a medium soft cellulose acetate molding compound proved to be most satisfactory. A plastic spout was developed in conjunction with a screw thread closure, suitable for a standard 3-oz. round bottle. The spout is sealed with plastic and provides a small tip which when broken off reveals the spout opening. Also provided is a re-seal cap for protection of remaining contents after the consumer has filled his lighter. The new plastic closure embodies the many consumer conveniences of the former lead spout and at the same time effects conservation of essential war materials.

The bottle is a standard round 3-oz. size and is of amber color. In changing to glass, the original identifying design of the former can was incorporated in a new three-quarter paper label. This label has a black "Energine" bulls-eye printed on a pleasing red background. It becomes a target for attention because of the sharp but simple design and the attractive color combination. The spout not only serves a utilitarian purpose, but it also adds to the good appearance of the whole package.

The Cummer Products Co., makers of Energine Lighter Fluid, believe that they have the first lighter fluid on the market packaged in a bottle with this particular type of dispenser spout and they consider it probably the most interesting development in packaging in their company during the past year. They report also that as a package it is sturdy and compares favorably in its ability to withstand rough treatment with the container previously used.

Credit: Bottle by Owens-Illinois Glass Co. Closure by Plastic Engineering, Inc. Label by Wheeler-Van Label Co.

New plastic caps, showing cap, liner, spout and small friction-fit reclosure cap.



MODERN DISPLAY
Look at all the places this Del Monte "BUY-FOR-A-WEEK" plan touches your business!
Aren't these the problems you are facing—this fall and winter of 1942?
Isn't this new plan one good answer to all of them?
Do your customers know what you are up against today?
HELP WANTED
Where will you get clerks?
If you deliver — how often and for how long?
What do your customers say about shortages?
Are you getting the business you should from the National Nutrition Program?
GET THE Del Monte "BUY-FOR-A-WEEK" habit
SAVE TIME—SAVE WORK—SAVE TIRES AND GAS, TOO!
—that's what we're telling your customers all this season

This poster reproduction of an advertisement was sent to Del Monte dealers to tell them about the program.

Posters help balance nation's market basket

How can a retail grocer get larger unit orders, now that women are shopping less often? How can peak shopping days be spread over the whole week? How is it possible to cut cost of selling, with fewer trained clerks in the store? These are three of the many questions uppermost in the minds of storekeepers throughout the nation.

In order to help managers of grocery stores with these wartime problems, the Del Monte Foods people developed a special plan and program of advertising, promotion and display. This plan Del Monte called the "Buy-for-a-Week" program and its purpose was to encourage women to plan nutritional meals for a week in advance, then buy as many of the foods they needed for a week as they could in one single grocery order. Not only did the program outline the buying of canned and glassed foods, but also it suggested the inclusion of all the many other grocery staples. Other suggestions made were that shopping be done early in the day and early in the week in order to help the grocer give the best possible service under wartime conditions.

The program began with national advertising in newspapers and magazines and this advertising was tied in with promotional material, window cards and posters, counter dispensers and informative folders. Many of the posters used were explanatory and stores found that they supplemented the clerks' explanations and often supplied directly the answers to many of the questions that consumers were asking. They told the customers why it was necessary to learn to switch and swap one food for another, why the grocer might be out of a particular product, why buying for a week would save time, work, tires and gas, and why these savings were absolutely necessary now. Other posters pictured a typical week's menu, showing how meals for meatless days could be managed during the week and still maintain a high nutritional and healthful food content over the seven-day period.

The chart issued by the Office of Defense Health and Welfare Services on the foods needed daily by the family was reproduced on some posters together with pictures illustrating the application of the chart by the housewife as she selects her foods in the grocery store. Housewives could then use the chart as a check list and by planning all their meals for a week at one time, they could make doubly sure that every day the family was getting the proper balance of foods.

Giant theme banners 50 by 28 in. were given dealers. These were afforded prominent positions in the stores and drew attention to the many supplementary posters and other display material which were created on the general theme of buy-for-a-week. In addition, listing posters, for weekly assortments of Del Monte foods were placed so that shoppers could conveniently glance over the various types of foods for the week. All these displays were printed in full color.

To make the buy-for-a-week plan easy and practical for women, Del Monte provided a folder, to be distributed to customers by the dealers, called "Wartime Meal Planner." Grocers distributed the folders from a handy counter box dispensing unit. The folder contained a copy of the government nutrition chart. Also there was a list of approximately 175 foods, classified into the eight nutrition groups, to aid women in selecting their menus. A simple form to follow in writing out menus for a week completed the "Meal Planner."

Del Monte felt that women want to follow the food rules of the government's nutrition program and that they want to save tires and gasoline by making fewer trips to market. They would also like to save time for war work by cutting shopping time to a minimum. But a great many of these women do not know how to go about planning and saving. Realizing this fact, Del Monte created the buy-for-a-week program from the viewpoint of women who were faced with special wartime food problems. Through this plan, Del Monte showed them just exactly how to do all these things by planning and concentrating a big share of their shopping in one large order, every week.

Posters, banners, folders, counter dispensers for leaflets and folders, together with other display material were made available to all grocers who wanted to identify their stores with the plan. Del Monte also supplied the "Wartime Meal Planners," packed in handy counter dispensers of 100 each, to grocers who wanted them for their customers. Del Monte reports that the plan and the material to carry out the program have been received more enthusiastically than almost anything the corporation has ever done. The demand for store material was and continues to be exceptionally high and widespread, from one end of the country to the other. Del Monte is well into its second million in the distribution of the "Wartime Meal Planner," partly (*Continued on page 110*)

WAS HITLER RIGHT
WHEN HE CALLED US SELFISH?
Answer him yourself after you read this statement about our food supply
Del Monte Foods

1

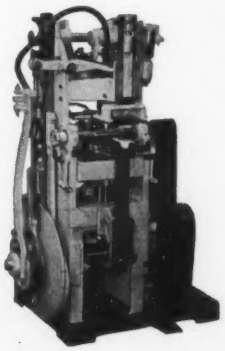
Del Monte Foods
Here's the easy way to plan better wartime meals
Del Monte Foods
There's real help for you! And help for your country, too! Ask your grocer about the
Del Monte "BUY-FOR-A-WEEK" plan
See what a great saver it is — see what variety it puts in a single week's meals!

2

1. ***One of a number of explanatory and informative pieces used by Del Monte to aid the housewife in understanding the food situation and in planning her meals in wartime.*** **2.** ***These pieces inform the customer of some of the Del Monte varieties that her grocer has on his shelves. The lower poster illustrates suggestions for a week's supply of products in one of the three nutritional groups into which the fruits and vegetables fall.***

Off to Active Service

IT'S a case of "essential business"—every case, essential to some part of Uncle Sam's fighting effort! Labelrites, and Motoairs *must* contribute to vital parts needed for food, drugs or other supplies before they can get on the New Jersey shipping line . . . .



Many of the cases contain machines never before manufactured by N.J.M. But Labelrites *will* be ready for shipment as soon as the Japanazis submit to their inevitable defeat!

NEW JERSEY MACHINE CORPORATION

1600 Willow Avenue **HOBOKEN, N. J.**

***Chicago office:* 325 West Huron Street**

DISPLAY GALLERY

1

1 There is a new trend in window displays brought on by dimout regulations in many cities. A unique, illuminated, three-dimensional display for Christian Bros. wines and brandy is 21 in. high and 14 in. wide, made of cardboard, with a base for the wine and brandy bottles. It features on transparent parchment and in beautiful colors the stained glass monastery windows used as background for the company's current ads. Before distribution, the display was submitted to the American Camouflage Corps, a group of civilian experts in fields allied to camouflage, for dimout tests. It was found that the illumination comes well within the limits prescribed by the Army. Unit made by Einson-Freeman Co., Inc.

2 Tetley Tea and Cola Life Savers are being advertised by means of these clever flange signs that swing back and forth and catch the shopper's attention. They are entirely of cardboard and printed in five colors. The arm from which the signs are swung is also of heavy, sturdy board. The rings which hold the signs to the arms are of plastic. These permanent fixtures are kept interesting by variety of cards. Made by The U. S. Printing & Lithograph Co.

3 Comes winter and many Americans begin to take a lively interest in bowling. Ruppert Beer uses this popular recreation as the subject for a poster. It is done in full color and the poster is given considerable depth by showing the bowling ball and the pretty girl in a close-up and the young couple in the background, holding glasses of beer. Designed and made by Einson-Freeman Co., Inc.

4 Countless matrons were interviewed by agency photographers of the Loose-Wiles Biscuit Co. before the ideal "Mrs. Thankful" was selected to illustrate posters used during the holiday season. Finally, after photographing some 50 eligible matrons, the model immigrant mother was chosen and posed for the appealing Thanksgiving copy, expressing her thankfulness for the opportunity and privilege of being an American citizen.

5 A Christmas display for Sheaffer's pens and pencils has a dual purpose. The framed picture may be lifted off the display and hung on the wall of the store. By removing the small holly pieces, the remainder of the unit may be used after the holidays. Designed and made by Stemar Displays Co.

2

3

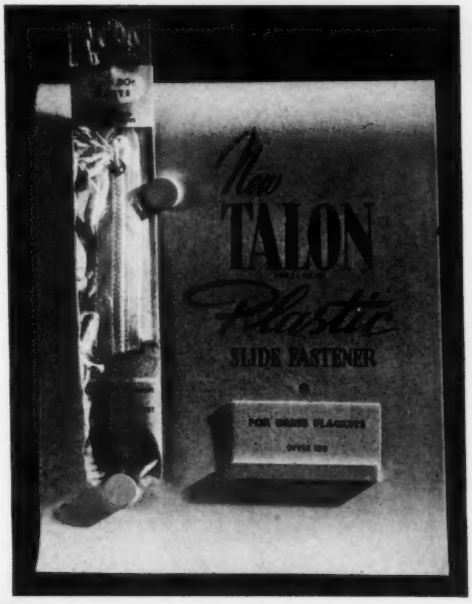
4

5

6

6 A poster notice such as this jar bank for sugar coupons makes a hit with grocers. Kept near the cash register, it informs customers of the number of the sugar stamp that is currently good. The empty jar of Grandma's Molasses, with slot in cap, provides clerks with a handy receptacle to save the ration coupons during the day. Made by Lutz & Sheinkman.

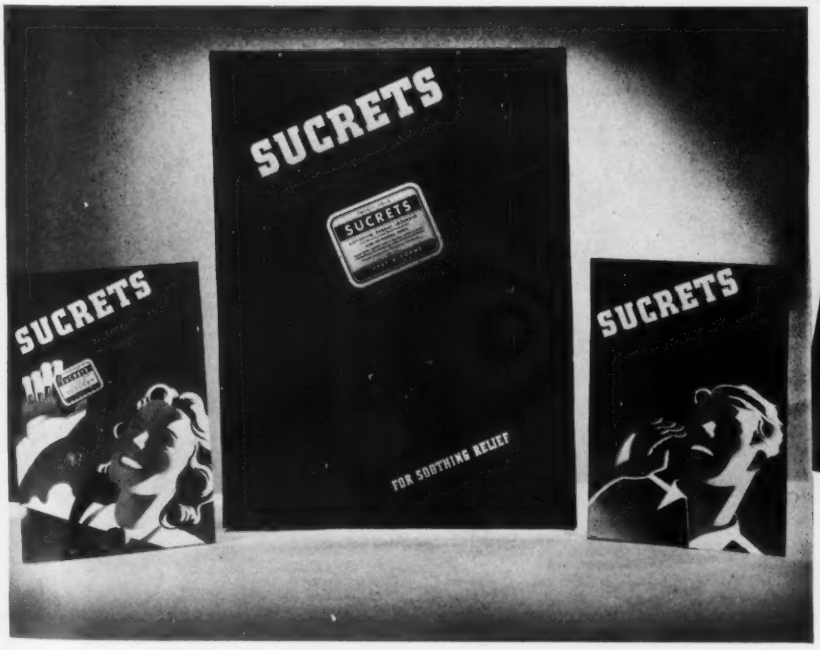
7



7 Development of this display for Talon slide fasteners was the result of seeking a durable merchandising display for retail store counters. Priorities made it difficult to consider metal, plastic or wood. The merchandiser is made of bent fibreboard, is curved to resemble a scroll and meets the requirements of durability, ease in assembly and flexibility necessary. A Talon fastener package is held in place by slots in small knobs. A small identification card informs the customer of the type of fastener displayed. Unit made by General Display Case Co.

8 New pieces for the retail drug store only are these advertising Sharp & Dohme, Inc., Sucrets. A bold, stylized poster makes an impressive centerpiece and emphasizes dramatically the purpose of the throat lozenge. Small side posters show the package and contents and add human interest. Made by Niagara Lithograph Co.

8



News story at point of sale

Quick-frozen foods are unique from the display angle because the packages can't be stacked on counters or shelves, shown in windows, used in jumble bins or in impressive pyramids in aisles or against store walls. Cartons of Birds Eye Frosted Foods must be kept under refrigeration at all times in their special refrigerator cabinet. Once defrosted, the foods cannot be replaced in the cabinet for refreezing. These foods are also unique from another angle—people must be educated to ask for them. The public must know about the special process and the particular qualities of the foods. They are, relatively speaking, new—that is, old foods in a very modern dress.

When frosted foods were first introduced on the market some years ago, they were publicized in much the same manner as that used by the advance agent of Ringling Bros. Circus in telling a community about the circus coming to town. Birds Eye employed dramatic tactics of the journalist and news reporter. Here was a kind of food that made news. Communities were selected in which it was felt the foods could best be introduced to the public. The leaders in the various women's clubs, social groups and other organizations would then be invited to a special luncheon or dinner given by Birds Eye representatives in a home or at the local prominent hotel. At this affair, the foods served would be Birds Eye Frosted Foods and there would be a food specialist to explain to the assembled company just what the foods were, how they were specially processed to preserve their farm-freshness and nutritive qualities. Then the representative would announce that a particular grocer in the community was going to carry these quick-frozen vegetables, fruits and meats, beginning with a certain date. All those who had attended the luncheon or dinner gathering were potential customers and excellent word-of-mouth advertisers for Birds Eye foods.

The grocer selected to carry these frosted foods then received a special introductory display kit which included window units, announcement pennants, counter cards and consumer display educational pieces. Announcement streamers were carried on store fronts and inside the stores stating that the Birds Eye Frosted Foods were coming to these grocers. A little later, when the grocer was equipped with the special refrigerator cabinet and a stock of foods, other streamers printed in large, billboard type, told shoppers that frosted foods were now available.

A third piece of promotional material provided by the grocer was a folder to be mailed by him to his regular customers. The folder told briefly about the foods themselves, their advantages and qualities, the various kinds which could be purchased and gave a number of recipes illustrated with appetizing pictorials of the dishes themselves. A white space was left in which the grocer could fill in conveniently the name and address of his customer.

This opening kit of display and promotional material has been used by Birds Eye as a regular practice for some time. The opening kit is a part of the general educational campaign, of letting people know about these new and unusual food products. Since not every grocery store in a community carried frosted foods, the one or two stores which were selected to handle them made news and the display pieces were created to reflect and carry out this slant.

Now that many thousands of stores in the country carry these foods and there are few towns or cities that do not have

1. Announcement banner which identifies a particular dealer with the quick-frosted foods. 2. Package itself is given spot placement on this easel-backed card.

1

2

3 4

3. The refrigerator case for frosted foods has places for the insertion of full-color pictorials. 4. Three cards which show the type used in the front of the refrigerator case. They illustrate the variety of foods available or picture appetizing dishes made with them. 5. Samples of different posters and banners used. One is that used to introduce the foods into a particular store in a community. Another represents a tie-up with national advertising.

a representative Birds Eye store, these opening kits are used only in occasional instances. It has also been found that there is little need for store demonstrators. In the beginning of developing a market, demonstrators were employed. Each demonstrator would be equipped with the usual booth, posters, leaflets and other informative and sales pieces which would stimulate buying interest. As women began to learn about the products and to become acquainted with their uses, demonstrators were no longer needed to show the packaged foods and the method of cooking and using them in daily menus.

Most of the material now is of the reminder type. Posters, streamers, pennants, counter cards and the like all tie in with national advertising. Seasonal specialities are emphasized and there is a regular weekly program devoted to stressing special items. All display material has for its chief objective the steering of the customer to the refrigerated case containing the Birds Eye packages. The brand name, an illustration of the package itself and a color picture of a platter of fried chicken, of black raspberries and cream, of a thick, juicy steak, or of any other dish are the three things which appear invariably on display material.

Birds Eye considers its refrigerated cabinet a real display piece. It is a permanent fixture in the grocery store and one which the shopper cannot fail to see. The price rack with its names of the various vegetables, meats and fruits attracts attention and is an aid to menu planner. Every dealer is also given a series of cards for insertion in the spaces provided in the front of the cabinet. These cards show several of the foods prepared for the table. They are in full color for appetite appeal and the grocer changes the cards at intervals in order to direct attention to particular items.

Each week there is a Birds Eye special. Grocers are given posters or other types of display pieces for use inside the store or in the window to call attention (*Continued on page 120*)

5

They're here!
BIRDS EYE
FROSTED FOODS
THE NEW MIRACLE FOODS... EVERYBODY IS TALKING ABOUT!
NOT EVEN A MAGICIAN CAN LET 'EM OUT!
AS ADVERTISED IN LIFE MAGAZINE
This WORK-FREE Broiler pays off 10% more...in whites meat!
HOW TO BUY AND EAT BIRDS EYE

MORE MANPOWER

The hands that filled clips and cartons with cartridges are now doing other war work

THANKS TO NEW AUTOMATIC MACHINES

It has always been our job to devise new machines that would free the human hand and brain for more important tasks . . . So when we were given the assignment of creating a machine that would load cartridges into clips, we had the designers right in our own organization with the "know how" to do it.

Starting from scratch, with just a few clips and cartridges for experimenting, we designed and built a loading machine for Garand clips and another for Springfield clips in only three months' time. Quantity production followed. Later, we devised a machine for loading .30 caliber cartridges into a carton.

Many other types of machines built by us are being used in the armament program. And our standard wrapping machines, too, are turning out tons of food and other essential supplies for the armed forces, as well as for civilian needs.

Timely assistance for package goods manufacturers

Though extremely busy on war work, we are anxious to assist package goods manufacturers in every possible way. This includes not only servicing of existing machines, but aid in obtaining additional machines of our make, when necessary . . . If you need a wrapping machine, or machines, write us describing the type of wrapping to be done, and our Wrapping Machine Procurement Service will endeavor to put you in touch with a manufacturer who can sell or lease you the right machine.

PACKAGE MACHINERY COMPANY · Springfield, Massachusetts

NEW YORK CHICAGO CLEVELAND LOS ANGELES TORONTO

Mexico: Agencia Comercial Anahuac, Apartado 2303, Mexico, D.F.

Argentina: David H. Orton, Maipu 231, Buenos Aires

England: Baker Perkins, Ltd., Peterborough Australia: Baker Perkins, Pty., Ltd., Melbourne

PACKAGE MACHINERY COMPANY

Over a Quarter Billion Packages per day are wrapped on our Machines

Packaging table showing four judges evaluating the condition of the face labels.

Psychometric testing

*by H. F. Willkie**

A quality research program designed to improve the appearance of finished packages was inaugurated by The Calvert Distilling Co. of Joseph E. Seagram & Sons, Inc. At that time, there were 18 general points which were believed to be important but they were not well defined and they were very general in content. The Quality Research Laboratory elected to place the study on a practical basis by using psychological and psychometric methods of measurement.

Psychological procedures which utilize a consumer preference method are used by the Packaging Research Laboratory to evaluate finished merchandise and to prevent shipment of unsatisfactory goods. Since the standard of quality is a live and changing thing, it is logical that it should constantly change and be improved. Evaluation of the data secured by preliminary studies revealed that although a great many of the difficulties involved in operating the bottling lines and producing desirable finished packages were solved, improved methodology and technique were necessary. The original form was revised and a new form, which allowed greater discrimination and reliability, was substituted.

Through qualitative rating of the finished packages and treatment of the data by statistical means, we found that poor operations produced a finished package of inferior quality. Production of inferior merchandise is affected by the following factors:

Poor Workmanship. Imperfect hand labeling may be the result of:

(1) Secondary closures, labels and/or ribbons applied in a haphazard manner.
(2) Labels rubbed down with the same cloth over a short period of time create a dingy package.
(3) Air bubbles allowing the labels to pull loose, tear and scuff.
(4) Glue smudges near the edge of the label which leave "gummy" appearance.
(5) Wrong spotting of the label—out of panel.
(6) Wrinkles on the label creating an impression on the part of the consumer that the manufacturer was in a great hurry to put his product on the market and paid little attention to the quality of his merchandise.

* Vice-president in charge of production, Joseph E. Seagram & Sons, Inc.

1

2

1. Judges testing for clarity, back labels and state tax stamp. 2. Correct position for federal strip stamps, with photograph taken looking down upon the bottle.

Machine operations produce difficulties which are similar to hand operations, but they demand a different method of attack for their solution.

(1) Machines do not always spot labels in their correct positions on the bottles.
(2) Glue smudges on the edge of the label caused by dirty pads, improper tension of the machine, etc., leave an unfavorable appearance.
(3) Air bubbles.
(4) Wrinkles.

Poor Materials. Our data indicate that poor materials enter operations by affecting workmanship and appearance in the following ways:

(1) A poorly pebbled label may cause air bubbles.
(2) An incorrect weight of paper will cause air bubbles or may not adhere to the package.
(3) Secondary closures which are too large or too small will fall below the cap or stay above the edge of the cap.
(4) Asymmetric labels create the appearance of lopsidedness in the package.
(5) Non-aligned printing materially decreases the appearance of the finished package.

Packing. Poor packing operations result in the following defects:

(1) Careless packing results in torn labels and scuffing appearance.
(2) Ink will be rubbed off the label; scratches and marks will be present.
(3) Secondary closures which are not entirely dry and in place may be pushed up or down on the neck of the bottle.
(4) Tax stamps will be mutilated.

Inspection. In order to prevent shipment of defective merchandise, a stringent method of consumer inspection was developed. A consumer committee was set up to evaluate the appearance of the finished package by means of a rating system and, as a result, the Packaging Research Laboratory was developed. This laboratory is a unit of production, vested with authority to reject poor quality merchandise. Each line of production is tested each hour. If inferior packages appear, the existing defect is determined and remedies are suggested which will eliminate the trouble.

PACKAGING STUDIES*

Brand———————
Obs. Initials———————
Date———————

	Fair	Good	Poor
1. General cleanliness of bottle (glue, etc.)			
2. Position of back label			
3. Smoothness of back label			
4. Position of front label			
5. Smoothness of front label			
6. Superflous etchings on bottle			
7. Position of serial seal			
8. Smoothness of seal (creasing, etc.)			
9. Position of strip stamp			
10. Smoothness of strip stamp (creasing, etc.)			
11. Secureness of booklet cord			
12. Position of booklet (should be on back)			
13. Position of booklet cord (should be free from celoseal)			
14. Position of celoseal (should not cover ornamentation, etc.)			
Total			
Grand Total			

*Original form used to rate packages.

Our data indicate that as better quality packages are produced, control of finished packages becomes finer and the consumer becomes more critical in his judgment of the appearance of finished packages. This in turn forces us to become more critical in the rating of each item on the package. In order to evaluate properly the appearance of the package, it was necessary to use a psychometric table which was designed and built by us for study of the final product. The design of the table was the result of a great deal of experimental work. This table is 11 ft. long and 3 ft. wide and has a series of

3

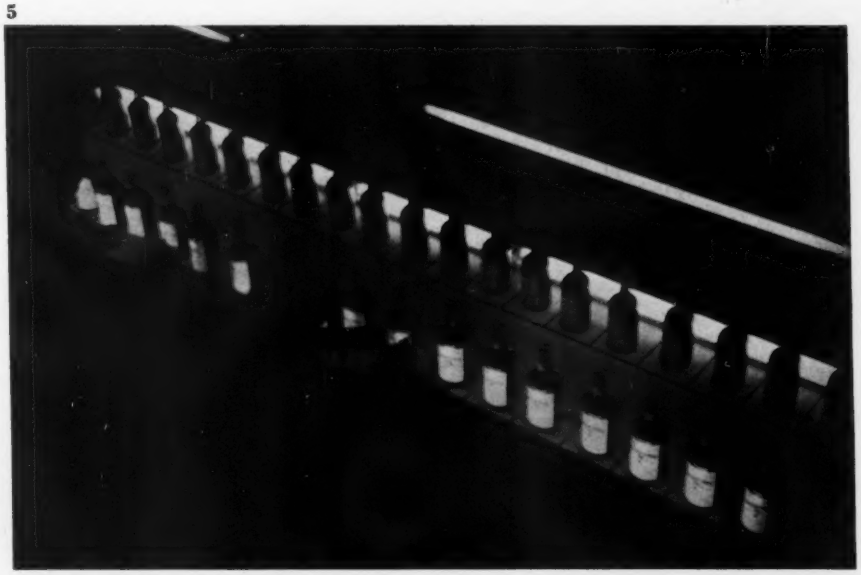
4

spaces numbered from 1 to 20 on one side and from 21 to 40 on the other. Fluorescent flood lights are placed along the edge of the table and from a beam which extends $2^1/_2$ ft. above the top of the table. The lights were placed so that shadows and other factors of illumination would receive proper compensation.

Sampling Procedure. From studies in similar fields of psychometric research, we knew that it was necessary to define the type of sample and specify the conditions governing the selection and taking of the samples. By research, we determined that 40 bottles would constitute a fair sample. The number of cases required for this sample varies with the size of the package being produced. Studies are conducted at hourly intervals and cases are removed at random from the production line.

After the sample has been selected, the 40 bottles are placed on the table and each item on the package is judged from two points of view: (1) analytical, in which specific deviations and items are noted—creases, air bubbles, etc., and (2) the total effect; that is, the appearance of the package as a whole. Each item is rated on a three point rating scale—good, fair and poor. If the item is good, it receives a zero deviation. If the item is fair, it receives a deviation of one point. If the item is poor, three points are used against it. It is well to emphasize at this time that the judges study each item and rate the item according to the aforementioned plan. The deviations of the four judges are then computed. Literal grades of A, B and C are assigned, depending on the number of deviations. By considering A, B and C grades as passing, it is possible to keep the bottling house management informed at all times regarding the quality of the work and gives the added advantage of allowing time for correction before an actual rejection occurs. One additional range is allowed and is known as an RA sample. An RA sample indicates that the merchandise is of only passable quality. All rejected packages are designated by the letter R which means that the merchandise must be inspected and reconditioned. An individual judge may lower the chance of approval for the package but he does not have the sole power of rejection since the final rating depends upon the composite result of the four judges. Each item must pass if the sample is accepted. In case of a rejection, either on an individual (*Continued on page 116*)

5



3. Face label and back label correctly placed. Federal strip stamp on the left bottle is slightly scuffed. 4. Approved finished packages showing face labels correctly placed and seals and strip stamps in good condition. 5. Psychometric table, showing the new bottles which were adopted to conform with government regulations regarding the use of standard containers.

Giant "gas masks" to remove plant odors

*by Henry Sleik**

Odor contamination connected with food packaging can be a very annoying problem and if the right measures are not taken to correct such a situation, it can easily impair the taste and appetite appeal of a product of otherwise high standard.

Bakery products, particularly bread and cake, are highly susceptible to foreign odors just after they've been taken from the ovens to cool. Any extraneous smells that may be floating about are drawn to them as if to a magnet. A bakery near, say, a processing plant that's a smell producer, will find it next to impossible to main uniform flavors.

A bakery of one large grocery chain, located in an industrial neighborhood, is taking no chances that its products will taste of oil, soap, rubber or anything equally unpleasant. It makes certain that all the air in its cooling floor passes through "odor adsorbers." These odor adsorbers are simply mammoth "gas masks" and work the same way. As in poison gas masks, the filtering medium used is activated coconut shell carbon. A forced fresh air supply system for the bakery floor was installed. Fans draw the air from the outside and first push it through dust filters which catch dust and suspended matter and then through the adsorbers which, in turn, extract all odorous gases and vapors. To forestall contaminated air infiltration or seepage throughout the remainder of the building, a slightly greater air pressure is maintained within the structure. This is done by forcing in enough air so that all leakage is outward. Hence the "infiltration tactics" of the enemy are foiled and the costly hazard of vagrant odors is eliminated.

Tests have shown that in a period of six months the carbon adsorbers have extracted from the normal city air entering this bakery floor approximately 130 lbs. of gaseous impurities over and above the enormous amount of suspended impurities stopped by the filters. Chemical analysis showed the major portion of these gases to be hydrocarbons, sulphur dioxide and hydrogen sulphide (rotten egg smell). The value of these odor absorbers in protecting purity and quality in any process may be realized from the fact that only one pound of the gas extracted is sufficient to contaminate seriously 8,000,000 cubic feet of pure air.

When the average person thinks of carbon, if he does, he pictures something black, dirty and not very attractive. Actually carbon is one of the most useful of man's servants. It's one of the most effective purifying agents known. The snowy whiteness of lard and sugar, the clarity of drinking water is due, more often than not, to the affinity that exists between activated carbon and all kinds of impurities. That carbon somehow possesses a strong attraction for smells has long been known. Probably prehistoric man knew that if he threw wood ashes over a decaying carcass, its smell would no longer bother him. This attraction of carbon for other substances is known as "adsorption."

By "activated" carbon is meant a carbon that has been specially processed to increase and intensify its inherent adsorptive properties. *Adsorb* and *absorb* are not quite the same. A sponge absorbs water. Carbon adsorbs gas. A sponge releases water readily but carbon won't give up gas until forced to, i.e., until it is "reactivated." Reactivation is a steaming process which releases the adsorbed substances and enables the carbon to be reused indefinitely. In activated carbon there are innumerable tiny canals or capillaries, so minute that they are invisible under the lens of the most powerful microscope and so numerous that their aggregate surface area in a cubic inch of activated coconut shell carbon is approximately 5 acres! When condensable gases and vapors come in contact with the carbon they undergo a change in their chemical structure and cling in condensed form to the sides of these sub-microscopic canals. Highly activated coconut shell carbon will adsorb gases and vapors up to 70 per cent of its own weight.

Although the principle of air purification by activated carbon is old, its industrial application is new. Developments in recent years have been such that an entirely new phase of air conditioning has resulted. While various methods of "masking" or hiding smells have been tried, they have proved unsatisfactory simply because they depended on one odor overcoming another. This obviously was not impurity "removal." Scientifically eliminating or controlling the accumulation of air borne gaseous impurities has proved a boon to many industries. A photographic film manufacturer found the quality of his sensitive product affected by atmospheric contaminations so faint that the nose couldn't detect them. Carbon protection now reliably insures the uniform quality so vital to photographic films. In the perfume industry chemists are continually making tests of their samples and blends, their sense of smell being the only means for making comparisons. Usually an odor-free atmosphere in a perfumery doesn't exist. Very often the chemist would have to take his samples home with him for testing. (*Continued on page 118*)

* Vice-president, W. B. Connor Engineering Corp.

Arrangement of the carbon canisters to remove odors

WHY HEALTH STANDS HIGH ON BOTH THE VITAL FRONTS

IT TAKES the best in heart and bone and muscle to build ships, and to man them, for war. You've got to keep a man fueled up to work like that. Especially today, with the terrific pace and pressure to build ships faster, FASTER.

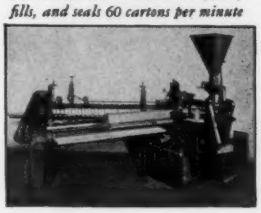
On both the production and fighting fronts, nourishing foods properly packaged and bottled by Pneumatic Machines, are doing a tremendous job in keeping our men fed and fit. In every industry where foods are packaged — and medicines, too — Pneumatic equipment is turning out the goods with unrivaled speed and exactness. And those are two of the victory assets of the ordnance equipment that Pneumatic is largely engaged in producing today to help meet the emergency.

If right now you're working on a war production problem that involves the packaging of such products as dehydrated foods, powdered eggs, army field rations, medicinal supplies, and other essential items — you'll find Pneumatic prepared as always to give you sound advice and reliable guidance. In war as in peace, it is still to your advantage to consult Pneumatic first. PNEUMATIC SCALE CORPORATION, LTD., 71 Newport Avenue, North Quincy, Mass.

New York · Chicago
• San Francisco •
• Los Angeles •

PNEUMATIC
PACKAGING & BOTTLING MACHINERY

This Pneumatic Small Combination Machine forms, fills, and seals 60 cartons per minute



What darkens packaged orange juice

*by E. L. Moore, W. B. Esselen, Jr., and C. R. Fellers**

There is still a lack of understanding regarding the fundamental factors concerned in the deterioration of packaged orange juice. A clear knowledge of the reactions involved in this deterioration and to the role played by the various constituents in the juice is necessary before an entirely satisfactory method of processing can be realized. Many undesirable changes in color, flavor and ascorbic acid content occurring in processed orange juice appear to be due to the presence of oxygen in the product at some stage of its preparation.

Eddy (1936) found a greater amount of oxygen absorbed than was indicated by potential reducing substances, as determined by the dye titration of the fresh juice. Clark (1941) discussed the effect of an excess of oxygen in the sealed containers on color and flavor changes and reduction in ascorbic acid with possible darkening of the juice. Joslyn and Marsh (1932, 1934, 1935) and Joslyn, Marsh and Morgan (1934) are of the opinion that the browning of orange juice involves oxidation. Tressler, Joslyn and Marsh (1939) further commented that darkening was more rapid in the presence of oxygen. It also proceeded rapidly even when the juice was deaerated to remove dissolved oxygen and stored in vacuum sealed containers.

It was reported by von Loesecke (1933) that deaerated flash-pasteurized orange juice, packed in glass, darkened when stored at approximately 32.2 deg. C. (90 deg. F.) regardless of whether plain or lacquered tinplate or aluminum caps were used. Darkening did not occur at 4.4 deg. C. (40 deg. F.) irrespective of the type of cap and no consistent relation was found between darkening and deterioration in the flavor.

Joslyn and Marsh (1935) stated that the primary products of oxidation apparently undergo a condensation in which secondary reactions, probably of the amino acid sugar type, occur. Wilson (1928) found a reduction in amino nitrogen and reducing sugar content and suggested that the darkening of orange juice during storage might be due to the Maillard reaction between sugars and amino acids. The data reported by Nelson, Mottern and Eddy (1933) are contradictory to those of Wilson. It is well known that conditions which would favor the development of the Maillard reaction, namely, high concentration of sugar and a slightly alkaline medium, are absent in orange juice. Von Loesecke, Mottern and Pulley (1934) pointed out that darkening was not always accompanied by deterioration in flavor and, conversely, that deterioration in flavor was not always accompanied by the darkening of the juice.

Hamburger and Joslyn (1941) advanced two theories for the mechanism of darkening in orange juice through the formation of polymerization products, either of ascorbic acid or an unknown constituent in the juice. Loeffler (1941) also stated that it was possible that the darkening of orange juice was due to decomposition of ascorbic acid.

Joslyn and Marsh (1935) stated that ferrous ions increase browning while stannous ions decreased it. No difference in the rate and intensity of browning was obtained by the use of different pasteurization temperatures. They further indicated that fermentation did not inhibit browning, but that increasing the acidity of the juice had some effect. Joslyn (1941) suggested that the original, almost momentary, contact of orange juice with air before deaeration may form peroxides which supply oxygen for the later deterioration of the juice. Cooper (1932) attempted to show that the changes in color in citrus juices were due to the presence of peel oil.

The fundamental factors involved in darkening are unknown and the work reported is contradictory in nature. In view of this lack of understanding it was decided to study the different parts of the orange and constituents of the juice systematically to determine the factors responsible for the darkening of packaged orange juice.

Experimental. The juice from Florida Valencia and California Valencia oranges was used throughout the course of this investigation. Preliminary studies showed that the orange juice filtrate darkened as readily as the whole juice. Thus, in order to facilitate the measurement of color changes and to eliminate suspended pulp and color bodies as variables, an orange juice filtrate was prepared and used in most cases.

Method of preparing filtrate. The orange juice was extracted by reaming and the pulp and seeds were removed by filtering through a single layer of cheesecloth. Filter-cel was added to the juice and the mixture centrifuged in glass centrifuge tubes at 2,000 r.p.m. for 10 minutes to remove suspended matter and color bodies. At no time during the investigation did the juice or filtrate come into contact with any metal except aluminum. The centrifugate was filtered, using suction and a Büchner funnel, through a layer of Filter-cel supported by two pieces of qualitative filter paper. The filtrate obtained was very clear and contained approximately 80 per cent of the ascorbic acid content of the original juice.

Source of light. The apparatus used for an artificial source of sunlight consisted of a light-tight aluminum painted box which contained a battery of three General Electric

TABLE 1.—Effect of Added Ascorbic Acid, Color Bodies and Pulp on the Darkening of Orange Juice Filtrate

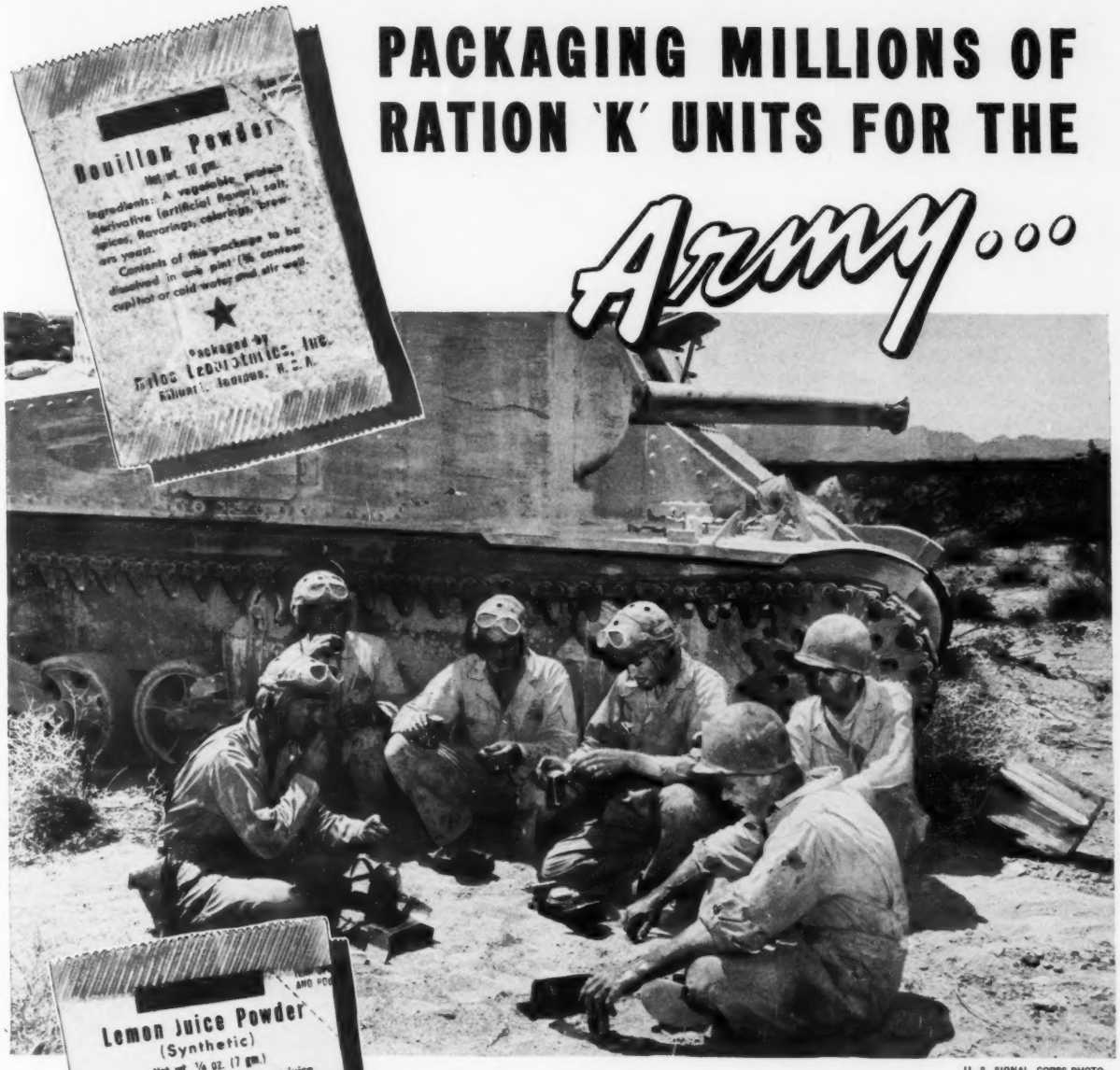
Sample	Color Index after One Week's Storage* Storage Temperatures 4.4° C. (40° F.)	48.9° C. (120° F.)
1. Whole juice	53.5	41.0
2. Filtrate	77.5	42.5
3. Filtrate plus color bodies	79.0	52.0
4. Filtrate plus pulp	80.5	61.0
5. Filtrate plus 64.8 mg. *d*-gluco-ascorbic acid per bottle	72.0	21.0
6. Filtrate plus 64.8 mg. *d*-iso-ascorbic acid per bottle	67.0	12.0

* A high color index value indicates a light colored solution; a low reading, a darkened or browned juice.

* Massachusetts State College, Amherst, Mass.

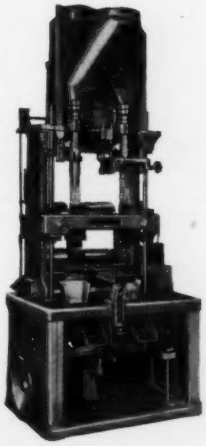
This paper was contribution No. 453, Massachusetts Agricultural Experiment Station. Presented before the Division of Agricultural and Food Chemistry of the American Chemical Society, Buffalo, New York, September 10, 1942.

PACKAGING MILLIONS OF RATION 'K' UNITS FOR THE *Army...*


Bouillon Powder
Net wt. 10 gm.
Ingredients: A vegetable protein derivative (artificial flavor), salt, spices, flavorings, caleriah, brewers yeast.
Contents of this package to be dissolved in one pint (¾ canteen cup) hot or cold water and stir well.
Packaged by
Stokes & Smith Co., Inc.
Frankford, Philadelphia, U. S. A.
Lemon Juice Powder
(Synthetic)
Net wt. ¼ oz. (7 gm.)
A mixture of dried pure lemon juice with corn syrup, dextrose, citric acid, ascorbic acid and oil of lemon.
Contents of this package to be dissolved in one pint (¾ canteen cup) hot or cold water. Add sugar and stir well.
Packaged by
Stokes & Smith Co., Inc.
Elkhart, Indiana, U. S. A.

U. S. SIGNAL CORPS PHOTO.

Millions of these packages are produced on Stokes & Smith Transwrap Machines. . . . Formed, filled and heat-sealed, in one continuous operation, to make a typical Transwrap job: a practical, low-cost package which fully protects the contents; seals in freshness and flavor; requires minimum material, time and labor to produce!



S&S **TRANSWRAP MACHINE**

Using Cellophane, or other heat-sealing films from the roll, the TRANSWRAP, like many other S & S machines, is easily convertible to varying needs for type, feed and size of package. If you need help in converting any S & S machine, or need new machines for war-essential uses, get in touch with S & S.

A product of **STOKES & SMITH CO., Frankford, Philadelphia, U.S.A.**

TABLE 2.—Darkening of Orange Juice Filtrate as Influenced by Different Parts of the Orange, Oxygen and Light

Sample	Color Index Before and After 1 Week's Storage							
	Storage Condition							
	Start		Cold 4.4° C. (40° F.)		Heat 48.9° C. (120° F.)		Light plus heat 48.9° C. (120° F.)	
	Headspace		Headspace		Headspace		Headspace	
	10 cc.	50 cc.	10 cc.	50 cc.	10 cc.	50 cc.	10 cc.	50 cc.
1. Whole juice	64.5	64.5	65.0	63.5	57.0	32.0	58.5	28.5
2. Filtrate	66.5	66.5	64.0	59.5	46.0	28.0	49.0	29.5
3. Filtrate plus pulp and color bodies	67.0	67.0	66.0	63.5	51.0	36.5	51.0	27.5
4. Filtrate plus ground peel	55.0	56.0	53.5	55.5	39.5	29.0	40.5	23.5
5. Filtrate plus split seeds	66.5	66.5	63.5	61.0	48.0	31.0	45.5	27.0
6. Filtrate plus l-ascorbic acid (324 mg. per liter)	66.0	66.5	64.5	60.5	50.0	20.5	50.0	19.0
7. Filtrate plus citric acid and sucrose	69.5	68.5	67.5	65.5	50.5	26.0	54.0	40.5
8. Filtrate extracted with petroleum ether	66.5	64.5	65.0	63.5	54.0	26.5	52.0	28.5
9. Filtrate plus pulp, color bodies, ground peel and split seeds	59.5	60.0	57.5	56.0	51.5	29.0	49.5	31.5

100 Watt S-4 Type Sunlamp bulbs. A fan was used to control the temperature inside the box.

Method of analysis. The following is the method used for determining color changes:

1. A 50-ml. sample of the filtrate of juice containing 2 per cent of Filter-cel was centrifuged at 1800 r.p.m. for 10 minutes.
2. Twenty-five ml. of acetone were added to 25 ml. of the centrifugate to precipitate substances causing turbidity.
3. The mixture was shaken and filtered through quantitative filter paper.
4. The color index of the filtrate was determined in an Evelyn photoelectric colorimeter (Evelyn, 1936) using Filter No. 420. The blank consisted of an equal mixture of acetone and distilled water. The galvanometer readings (color index) are proportional to the light transmission. A high reading indicates a light colored solution; a low reading, a darkened or browned juice.

Effect of added ascorbic acids, pulp and color bodies on the darkening of orange juice filtrate

A preliminary pack of juice and juice filtrate was put up in order to determine the influence on darkening of orange juice of color bodies, pulp and added ascorbic acids, in the presence of a large amount of headspace oxygen. The juice or filtrate was filled cold into 8-oz. bottles leaving a headspace of 100 cc. The bottles were sealed with crown caps with a glazed paper facing. They were pasteurized at 71.1 deg. C. (160 deg. F.) for 30 minutes.

Control bottles were stored at 4.4 deg. C. (40 deg. F.) and the test bottles were stored at 48.9 deg. C. (120 deg. F.), in the dark, for one week. The color index of the samples was determined at the end of the storage period and the results are summarized in Table 1. From Table 1 it may be seen that orange juice color bodies and pulp did not influence the darkening of orange juice filtrate as much as the addition of ascorbic acids which definitely increased the darkening of the filtrate, in the presence of a large amount of headspace oxygen.

Darkening of orange juice filtrate as influenced by different parts of the orange, oxygen and exposure of light

This experiment was extended in order to determine which part or parts of the orange might be responsible for the darkening of orange juice. The effect of exposure to light and headspace oxygen was also observed. A clear filtrate from orange juice was used. A portion of the filtrate was extracted with petroleum ether in order to find out if the fat-soluble fraction was involved in the darkening. All of the experimental samples were packed with headspace of both 10 cc. and 50 cc. so that the effect of different amounts of oxygen on darkening could be observed.

The experimental samples were made as follows:—To each 950 ml. of juice or filtrate the following substances were added.

1. Whole juice—made up to 1,000-ml. volume with distilled water.
2. Filtrate—made up to 1,000-ml. volume with distilled water.
3. Filtrate—made up to 1,000-ml. volume with orange juice pulp and color bodies.
4. Filtrate—made up to 1,000-ml. volume with ground peel.
5. Filtrate—made up to 1,000-ml. volume with split seeds.
6. Filtrate—324 mg. l-ascorbic acid added and made up to 1,000-ml. volume with distilled water.
7. Filtrate—plus 25 ml. portions each of saturated citric acid and sucrose solution.
8. Filtrate—extracted with petroleum ether and made up to 1,000-ml. volume with distilled water.
9. Filtrate—made up to 1,000-ml. volume with equal portions of orange juice pulp, color bodies, ground peel and split seeds.

All of the above experimental samples were filled cold into 6-oz. clear glass juice bottles. The bottles were sealed with crown caps with a glazed paper facing and pasteurized at 71.1 deg. C. (160 deg. F.) for 30 minutes.

The samples were divided into four portions. The color index was determined in one portion, the control, at the start of test. Another portion was stored at 4.4 deg. C. (40 deg. F.) in the dark for a period of one week and then analyzed for color index. The other two portions were treated as follows: one was exposed to intense light from the sunlamp bulbs for 36 hrs. at 37.8 deg. C. (100 deg. F.), while the other was held at the same temperature in the dark. Both were then stored at 48.9 deg. C. (120 deg. F.) in the dark for five and one-half days. At the end of this storage period, the color index of these two portions was determined. Tests showed that after the storage period none of the darkened samples contained any ascorbic acid. The experimental data are summarized in Table 2.

The experimental results indicate quite definitely that ascorbic acid, in the presence of oxygen, is directly associated with the browning of orange juice. The fact that the filtrate darkened as readily as the whole (*Continued on page 120*)

ETHOCEL SHEETING
-flexible at 70 below!

Flexibility at temperature extremes is an essential quality in nearly all plastic sheeting applications. For, without flexibility *under widely varying conditions*, your product may fail when it is needed most urgently.

On this point alone, ETHOCEL* Sheeting merits your thorough investigation. Tests show that it remains flexible at temperatures as low as —70° F. Even when it arrives at your plant in subzero weather, no preconditioning is necessary before fabrication.

ETHOCEL Sheeting (made of Dow ethylcellulose, the toughest cellulose material commercially available) also retains its inherent qualities of flexibility and toughness at temperatures as high as 200° F. As a result, it can be specified for use where weather conditions are extremely divergent. Consider this fact now—then plan your new product.

SCORING AND BEADING WITHOUT BREAKING

ETHOCEL Sheeting does not depend upon plasticizers to take scoring and folding without breaking or tearing. Moreover, it can be scored and folded *through a beaded* edge. This makes beading practical for rectangular boxes as well as cylindrical shapes —giving both increased rigidity.

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York • St. Louis • Chicago • Houston • San Francisco • Los Angeles • Seattle

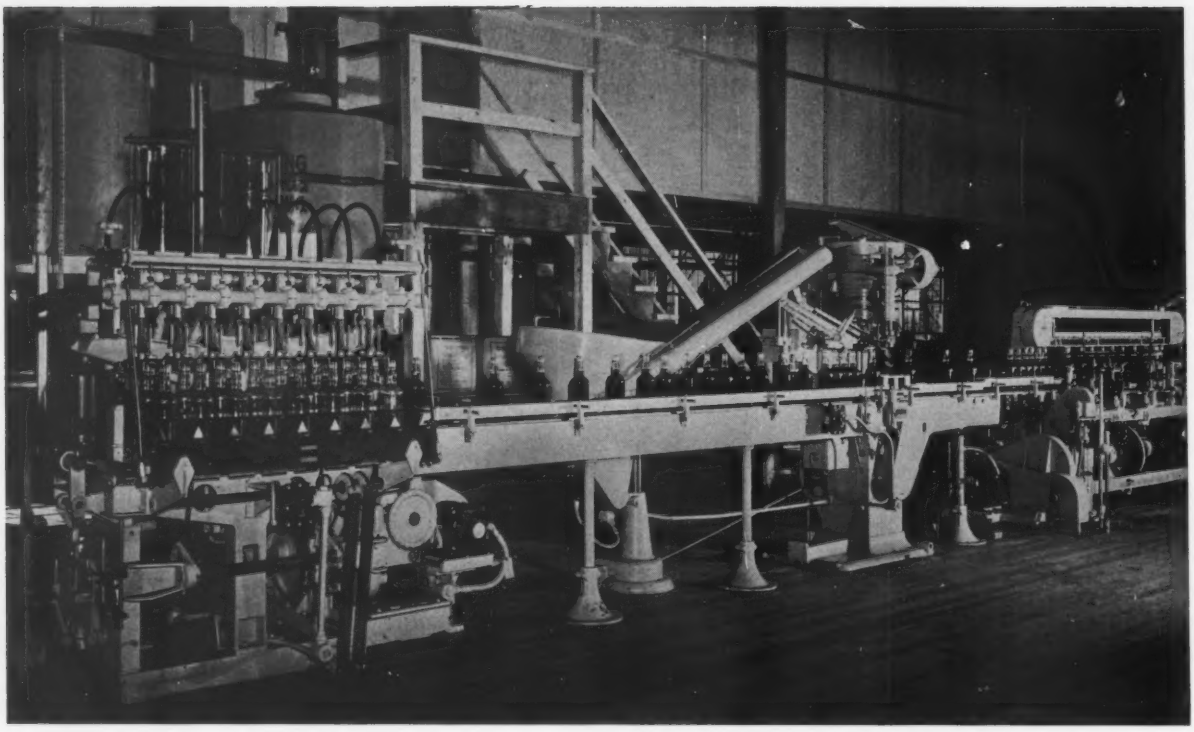
* Ethocel and Styron are Registered Trade Marks.

PLASTICS

STYRON SARAN ETHOCEL

DOW

CHEMICALS INDISPENSABLE TO INDUSTRY AND VICTORY



This packaging line for liquor specialities is adaptable to four sizes.

Good-by hand bottling

Along with moving into a building specifically rebuilt for packaging and distribution of liquor specialties, the Southern Comfort Co. of St. Louis, Mo., is creating a great deal of attention with the small, but streamlined bottling system which it began using in May of this year.

The Southern Comfort Co., headed by F. E. Fowler, has since repeal been bottling its well-known 100-proof liquor specialty by hand, formerly handling all operations in a small building at 314 Market Street in St. Louis on the banks of the Mississippi. Here a dozen girls filled glass entirely by hand, except for the use of small appliances for label fixing and attaching top. This fact was played up heavily for several years in Southern Comfort advertising, with the result that Mr. Fowler rather regretfully relinquished the hand-bottling system in favor of mechanization of the entire process. Installation of the new line, however, was necessitated by sales expansion and consequent inability to keep up with demand.

In the present location, Southern Comfort has combined several natural advantages. First, the new structure was originally designed for a distributor of heavy sanitary supplies and equipment and has steel beam supports which make the structure capable of supporting the heaviest stocks of bottled goods without risking floor collapse. Second, although the building actually only has two floors, there are two sub-floors between, which make four actual working levels for production of Southern Comfort, storage and the new bottling line. The new building is located at 2121 Olive Street, near the center of the city, with better distribution routing thus possible. Included is a 300 per cent increase in size, a total of 16,500 square feet of storage and production space and better facilities for loading and unloading of trucks, in which Southern Comfort is shipped exclusively. The building has an automatic heating and air conditioning system designed primarily to control heat for the quality of the product. An all-glass roof over the bottling line also provides ideal illumination.

Before beginning construction, Mr. Fowler went to a manufacturer of machinery in Boston with his production problems. He spent several days with that company, tested all equipment and came back to St. Louis with a guarantee from that company, underwriting performance of the line written into the contract—something unusual in connection with such an installation. As the largest part of the $35,000 investment represented by the new plant, the bottling line is thus entirely built by one firm, guaranteed to function at a set quota through the years.

The bottling line is located on the second floor of the building, with storage and empty bottle space represented by the sub-floor above and below the second floor. Here the line requires 14 girls on the average, bottling fifths, pints, half pints and some miniatures—the latter used for promotional purposes by the company. On the first floor are business offices and storeroom and a large open space for storage of filled reshipper cases brought down from (*Continued on page 108*)

Old Glory will fly on tomorrow because this flag flies today

We are *all* carrying this "Battle Flag of Freedom" at Wright's these days, and we are carrying it with well over 10% of our total salaries and payroll *every* payday.

Our more than 700 employees are doing a war job too—a job that engineering skill and precision manufacturing experience has qualified them to do—well.

. . . Wright equipment in the hands of our customers, with proper care and attention, should outlast this war, and War Bonds purchased today will provide funds for finer automatic packaging machinery tomorrow.

On repairs and maintenance we are equipped as always, to *serve*.

Holder of the Coveted Treasury Flag

ESTABLISHED • 1893 •

PACKAGING ENGINEERS

WRIGHT'S AUTOMATIC MACHINERY COMPANY

DURHAM CABLE ADDRESS YONWRIGHT NORTH CAROLINA, U. S. A.

KEEP YOUR EAR TO THE GROUND

This is a new department. Many of these items may be just rumor.—Take 'em or leave 'em. Ordinarily, we'd rather be scooped than wrong. In these unusual times, however, too many things are happening in the laboratory to wait until every development is commercially available. Making a place for brief notes on what we hear will be a stimulating service to everyone. Some of the items are confidential—so please don't ask for particulars yet.

● **Bagasse Source of Plastic Material**—Valite, a new molding compound made of bagasse (residue remaining after extraction of juice from sugar cane), containing no critical chemicals, has been developed at the instigation of Raymond Loewy. It is a semi-thermosetting type of material, with a distinct leaning towards an impact technique of molding. The bagasse compound is comparable in most respects with the general-purpose thermosetting compounds previously on the market, those who have developed it claim. However, treating the material partially as a molding compound and partially as an extender for certain critical materials, a material of better flow properties can be developed with the addition of 10 per cent of phenol furfural. As an extender, the increase in the amount of total molding powder is very great.

The developers of Valite report that on test molds made under unfavorable conditions on a toggle press with plain powder (not pre-formed) excellent results were obtained with the following cycle: cure—20 seconds; chill—30 seconds. Indications are fairly good that this can be reduced to 10 seconds and somewhere between 20 and 30 seconds. Molds must be channeled for both steam and water. Surface finish is good with a good glaze. Molds used were not perfect, but every indication points to a perfect finish should powder be pretableted. Molding requirements are two to three thousand pounds per square inch of mold surface. Heat temperatures between 250 and 275 deg. F., with heat reduction of approximately 30 to 40 degrees prior to breaking mold. Immersion tests in cold water for 25 hours show less than one per cent absorption.

The material is strong and light in weight. It can be used for a wide variety of items, including closures. The plastic, however, is destroyed by: Soda Lye 42 degrees Be; Methyl Cellosolve; Chloroform; Nitric Acid Concentrate, on contact.

● **Coating for Oil Containers**—Thomas W. Dunn Co., manufacturers of gelatine since 1878, make a material called Dunnflex, which is being studied as a coating and sealing compound for containers to hold oils and greases. This material, made from the white connective tissues of animals and a form of alcohol derived from corn, has been used for many years to seal the seams of steel drums. The compound is shipped as a solid to conserve shipping space, but sliced so that it is ready for use in a melting pot. When hot it is fluid; when cold, solid. It is thinned in hot water and may be poured, brushed, pumped, sprayed or used as a dip. It can be insolubilized and is then nonremeltable. The company claims that any continuous film of Dunnflex (i.e., no pin holes) on anything to which it will adhere will prevent penetration of greases, vegetable oils, pure alcohol, turpentine, gasoline, kerosene and many other non-watery but penetrative products heretofore shipped in metal or glass. It will stop penetration of oxygen and other gases, but will not prevent penetration of moisture vapor. A paper container treated and sealed with this compound and holding kerosene was demonstrated at the annual meeting of the National Assn. of Insecticide & Disinfectant Mfgs., December 8.

● **Maybe It Can Be Told**—The army and navy are using a dehydration substance, Silica Gel, made by The Davison Chemical Corp. in the packaging of mechanical parts, ordnance, etc., to do away with the heavy grease-coatings which the boys love to remove! As noted in last month's issue (page 134), one of the government agricultural experts thought perhaps this same substance might be used to help in determining moisture permeability for the packaging of dehydrated foods, but the manufacturer told us it was not particularly adapted for such an application. However, we have since learned that Silica Gel is doing a perfectly swell job in helping to keep ungreased machine and ordnance parts in such shape that they can be put to immediate use in the field. This is the story we want to tell you—if the government will let us.

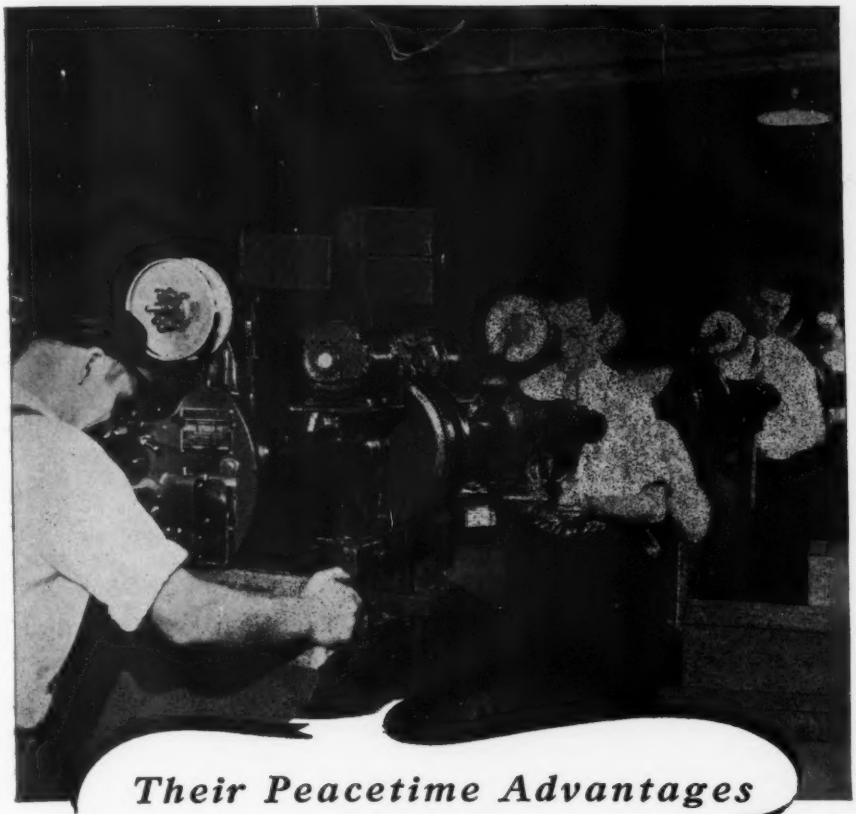
● **Water Resistant Paper**—Another process for producing non-water-defibreing paper treats practically any kind of paper with specially-selected colloids. H. Scherbak, a Czech engineer who invented what is named the "Aero-Hydro" process, explains that these colloids cover the fibres with a fine film which gives the treated papers their non-water-defibreing characteristic and also makes them very resistant to abrasion. With the right selection of untreated paper and processing, it is possible to produce a treated paper that is highly resistant to water, grease, oil, gasoline, alcohol and poison gas and, in addition, tropics-proof; or paper which is highly resistant to water and at the same time noninflammable, soft and stitchable on sewing machines.

● **Cellophane**—Rations may be cut because of the need for more glycerine which is used primarily for explosives manufacture. Glycerine is a by-product of soapmaking and in addition to being used for explosives, it has an important use in the manufacture of alkyd resins for paints and in the making of cellophane. Alkyd resin finishes have increased tremendously since it is an essential in the painting of war equipment of every description from battleships to tanks and guns.

The demand for glycerine has further been aggravated by lend-lease. If cellophane were only a luxury wrapping material, it would be easy to cut down the use of glycerine, but cellophane is an actual military necessity. It is being used in huge quantities for mustard gas capes for the armed forces. In addition, there is "Bubblefil," a Du Pont cellophane product—air bubbles are incorporated in sleeves of cellophane and being used for life preservers, rafts, mattresses, etc.

All these uses must be tied in with the use of cellophane in the food field, too, where it is doing a yeoman's job in replacing tin. As a consequence, it is highly probable that there will be another cut in cellophane for civilian usage.

● **Hardwood Pitch Extends Molding Compounds**—Shortage of phenol has been so acute as to limit production of essential war items. New molding compounds and materials which will minimize the amount of phenol necessary are thus of prime importance. One of the most recent developments is a compound developed by Makalot Corp. and is formulated with varying amounts of phenol and hardwood pitch. Varying proportions of the pitch may be incorporated in the phenolic resins, the exact proportion being contingent upon the precise properties desired in the finished plastic material. It is particularly adaptable for screw caps and sample caps have been made by Terkelsen Machine Co. The material has a torque strength of 40 as against 50 which is the regular type of material used for conventional screw caps. Thirty is the minimum which is required of screw caps so this comes in between and will handle probably on any conventional capping machine. Another advantage is that of cost—the material is considerably less in cost than that of phenolic molding powders. It has also been found that the material can be used with 50 per cent of ureas, making an excellent molding material for screw caps. This would bring the price of the combined material to half the price of present ureas (molding powders) used for screw caps.



Their Peacetime Advantages
SERVE
WARTIME NEEDS

The need for speed in assembling and sealing corrugated and solid fibre containers is being met by SEYBOLD Morrison Wire Stitching Machines.

Up to 5 times faster than less efficient methods, wire stitching doubles the strength of seals. Wire stitches are moisture proof and resist pilfering.

In addition to those advantages, wire stitching saves on material costs. (Wire stitches cost only 3¢ to 5¢ per thousand.)

SEYBOLD Morrison Wire Stitching Machines are now equipped with the exclusive Type-SL Head that raises wire stitcher efficiency, economy and durability to new, high standards.

In peacetime or wartime, the many exclusive advantages of SEYBOLD Morrison Wire Stitching Machines merit careful consideration.

SEYBOLD DIVISION, HARRIS-SEYBOLD-POTTER CO.
843 WASHINGTON STREET • • DAYTON, OHIO

Seybold and Seybold Distributors are doing everything possible to aid National Defense and, wherever conditions permit, to maintain service with established Seybold customers.

New York
E. P. LAWSON COMPANY, INC.
426 West 33rd Street

Chicago
CHAS. N. STEVENS CO., INC.
112 West Harrison Street

Central Sales District
HARRIS-SEYBOLD-POTTER CO.
843 Washington St., Dayton, Ohio

Detroit, Michigan
CHAS. A. STRELINGER COMPANY
149 East Larned Street

Southern Sales District
HARRIS-SEYBOLD-POTTER CO.
220 Luckie Street, N. W.
Atlanta, Georgia

West Coast Distributor
HARRY W. BRINTNALL CO.
San Francisco • Los Angeles
Seattle

Canadian Distributor
HARRIS-SEYBOLD-POTTER (CANADA) LTD.
Toronto and Montreal

SEYBOLD *Morrison*
WIRE STITCHING MACHINES

WASHINGTON REVIEW

Summary of current situation and limitation orders

● **Grade Labeling Compulsory**—Because of the importance of the subject, we are quoting verbatim the full text of OPA release 1312, dated Dec. 13.

"Standardized grade labeling will be compulsory for the bulk of the 1943 pack of canned fruits and vegetables, Price Administrator Leon Henderson announced today in advance of the issuance of regulations setting dollars-and-cents maximum for the pack.

"The first commodities to be affected will be canned citrus fruits and juices, which are now being canned.

"The Office of Price Administration emphasizes that it is embarking on this standardized grade labeling program solely because standardized grade labeling embodies the best mechanical means of instituting equitable, effective and enforceable price control," Mr. Henderson said.

"In the case of canned goods, OPA feels that the interest of simpler and more effective price control will best be served through the establishment of uniform, dollars-and-cents ceilings, f.o.b. the cannery, adjusted regionally and by grades. This, of course, requires that the price program be related to standardized grades—for the protection of canners, distributors and consumers.

"OPA pointed out that Governmental standards, set by the Agricultural Marketing Administration, are available for nearly all of the canned fruits and vegetables now packed. These are in use to some extent, but such terms as 'fancy' in labeling may not always correspond with the Government-established standards.

"These standards will be incorporated in the new regulations, along with the mandatory provision that grade identity must be printed on the container label.

"The actual labeling to be used in identifying the grade will be optional—either the Government's symbols, 'A,' 'B' and 'C,' or the familiar trade terminology, 'Fancy' (the equivalent of 'A'), 'Choice' or 'Extra Standard' (the equivalent of 'B') and 'Standard' (the equivalent of 'C'). The cost of the necessary imprinting or over-printing will be included in the ceilings established under the regulations.

"Complete inspection of the pack will be undertaken by the Agricultural Marketing Administration. The cost of the grading also will be included in the ceilings.

"From the consumer's point of view, compulsory grade labeling will mean that the purchaser is sure she is getting what she is paying for. Whether actual ceilings will be higher or lower than those now existing will have to be determined on the basis of all factors involved in each canned fruit or vegetable packed. The percentage of the pack which will fall in 'A' or 'B' or 'C' will vary with each fruit and vegetable.

"Working with other Government agencies, OPA has decided that compulsory grading will apply to AMA or Lend-Lease purchases, but will not be required on merchandise purchased for the armed forces. This action is believed to be in the best interests of both Government and industry.

"Standardized grade labeling will find wide support among the food processors, OPA said, since it will help to provide a means of establishing practical and effective controls, conducive to much less inequity and confusion than the method, hitherto in effect, of pricing each individual canner's pack by formula."

● **Possible Relief from Questionnaire Load**—Roused by complaints from business, Congress investigated the entire subject of burdensome questionnaires. Furnishing information required by various government bureaus makes terrific cuts in the efficiency of office help and costs out of all proportion to its value, testimony shows. At this writing the Murray Bill, providing a method for cutting red tape, has been passed by both houses and now awaits the President's signature.

● **Folding Box Recommendations**—The Industry Advisory Committee of the Folding Box Industry presented recommendations November 24 to the Containers Branch of WPB, excerpts from which are: (1) The demand for conversion from critical metals to paperboard for packaging war material and essential needs would likewise increase, thus making it necessary to keep production facilities for paperboard and paper boxes intact. (2) Paperboard used in the manufacture of boxes was primarily made of salvage waste materials and should, therefore, be distinguished from other materials requiring a greater use of pulp, production and transportation facilities, and manpower. (3) If curtailment of board production should, however, become necessary, it was recommended that such curtailment should not apply to paperboard made essentially of waste paper. (4) Rather than curtail box production, it would be more advisable to consider packing more units per package. (5) The paper box industry is a *service industry*, manufacturing packages for other industries, many of which are already out of business and others of which have been required to curtail production of their own products due to their inability to obtain essential critical materials. This has already resulted in the elimination of non-essential packages. (6) Furthermore, as long as our customers are permitted to manufacture their products, the box industry should be permitted to manufacture the containers in which these products must be packaged, for their proper preservation.

● **Eliminate Frills**—WPB is being pushed by the Office of Economic Stabilization to standardize civilian goods, "not merely to eliminate frills and wasteful practices, but wherever necessary and advantageous to concentrate on the production of relatively few types of goods of standardized quality, design and price."

● **Point Rationing Here Soon**—Of primary interest to housewives, point rationing is expected to put consumer buying on a carefully planned basis. Retailers shelves now contain empty spaces where packaged merchandise was found formerly. Federal authorities insist everybody will have enough to eat, but food habits will change. Point rationing, they say, will equalize distribution, on a fair basis.

● **OPA Warns About Changing Brands**—November 23, OPA cautioned that changing the brand does not change the commodity, consequently does not carry a new ceiling price.

● **Canned Foods Quotas**—Canners must set aside approximately 6,300,000 cases of canned citrus fruits and juices for the armed forces and lend-lease.

● **New Amendment to Can Order**—December 9 amendment to Conservation Order M-81 tightens the control over metal containers, by adding to the list of restricted items.

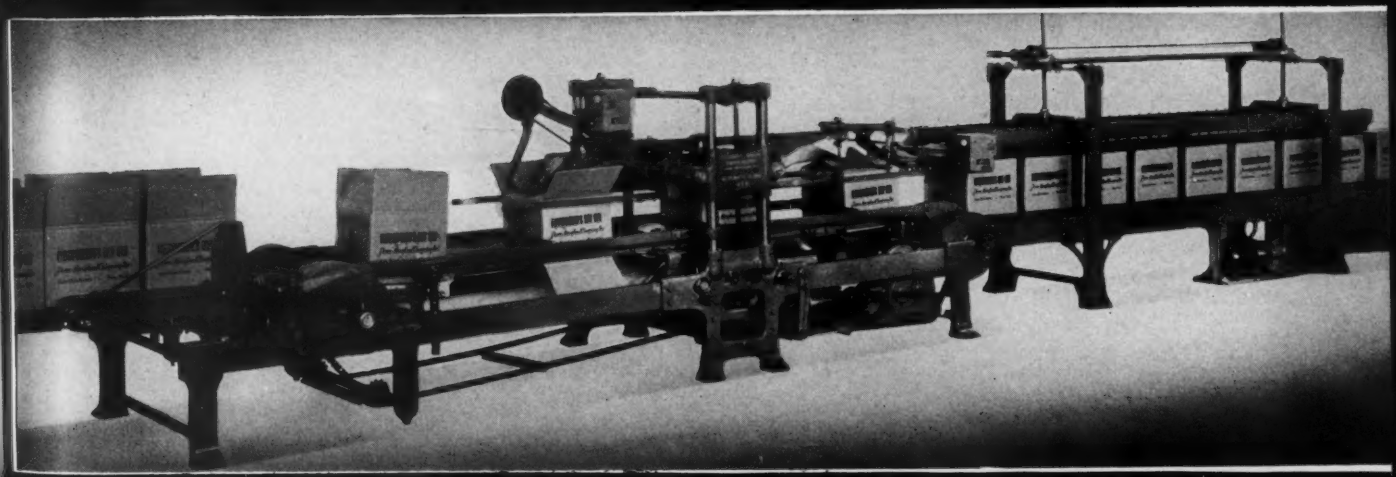
● **Crown Cap Limitations**—Bottlers, not regularly engaged in the manufacture of crowns with cork disks, are prohibited from acquiring them if they have a 30-day supply. (Amendment No. 3 to General Preference Order M-8-A.)

● **Beverage Crowns**—Crown caps made from scrap prior to Sept. 26, in excess of quotas established by Order M-104, may not be used by brewers and bottlers until all scrap now owned by them is fabricated into crowns. WPB Containers Division stated that appeals from provisions of M-104 will be considered favorably, if it is shown that all blackplate scrap owned will be made into crown caps and used within the 70 per cent quota limitation before purchases of crowns are made. A clarification of crown classifications was also made.

(*Continued on page 110*)

PACKAGING LEAD FOR THE AXIS

The well-known Standard-Knapp case packers and case sealers are, and will be for the duration, completely devoted to packaging lead and other delicacies for our Nipponese and Nazi friends . . . so that we can once again supply all the peacetime industries with this equipment. After the war, those leading packagers of cereals, coffee, sugar, beer, meat, tobacco, etc., etc., who want Standard-Knapp equipment for its low unit cost factor and long life will be able to buy it.



STANDARD-KNAPP CORPORATION

MANUFACTURERS OF CASE SEALING, CASE PACKAGING, AND CAN LABELING MACHINES

FACTORY and GENERAL OFFICES PORTLAND, CONNECTICUT

570 Lexington Ave.
NEW YORK, N. Y.

208 W. Washington Street
CHICAGO

702 Society for Sav. Bldg.
CLEVELAND

300 Seventh Street
SAN FRANCISCO

420 S. San Pedro Street
LOS ANGELES

3224 Western Avenue
SEATTLE

1208 S. W. Yamhill Street
PORTLAND, OREGON

Paul Brown Building
ST. LOUIS, MISSOURI

Windsor House, Victoria Street, LONDON ENGLAND

U. S. patent digest

This digest includes each month the more important patents which are of interest to those who are concerned with packaging materials. Copies are available from the U. S. Patent Office, Washington, at 10 cents each.

ARTICLE HOLDER. L. Neumann and L. Karniol, New York, N. Y. U. S. 2,302,045, Nov. 17. A holder for salable articles comprising a sheet of material composed of two parts, one of which is provided with a series of integrally formed hollow depressions, each of a size and shape adapted approximately to fit a salable article inserted therein.

CONTAINER. I. L. Wilcox (to Oswego Falls Corp., Fulton, N. Y.). U. S. 2,302,083, Nov. 17. A container comprising a tubular body, with a strip of impervious sheet material folded upon itself and arranged between the flange of the cover and the side wall of the body and extending across the top edge of said wall and downwardly on the inner surface.

BOTTLE HOLDER. W. B. Crane (to Morris Paper Mills, Chicago, Ill.). U. S. 2,302,677, Nov. 24. A carrier comprising a bottom and side walls forming acute angles with the bottom and joined to form an acute angle at their top end walls between the side walls and bottom.

BAG. T. M. Avery (to Union Bag & Paper Corp., Hudson Falls, N. Y.). U. S. 2,303,296, Nov. 24. A mailing bag comprising a tubular body having opposed sides and pleats connecting their longitudinal edges, one of said sides providing an area for the address of an addressee and other side having a longitudinal seam exteriorly beyond the respective side of the body and foldable against the latter side of the body.

MERCHANDISING AND DISPLAY BOX. G. J. Dubey (to Topps Chewing Gum, Inc., Brooklyn, N. Y.). U. S. 2,300,411, Nov. 3. In a display container a body portion adapted to fold into a prismatic configuration having triangular ends.

PACKAGE AND DISPLAY EASEL. K. Fink (to Topps Chewing Gum, Inc., Brooklyn, N. Y.). U. S. 2,300,412, Nov. 3. A display device with inclined panel, upstanding partitions arranged in parallel vertical planes so as to define channels, a stack of gum sticks arranged in each channel.

CONTAINER WITH INTEGRAL SPOUT. C. Ray, Los Angeles, Calif. U. S. 2,300,703, Nov. 3. A container having four side walls delineated by fold lines, a single tab extending from three contiguous walls thereof, said tab being folded inwardly into a plane transverse to the side walls along fold lines.

SUPPORTING PACKAGE AND DISPLAY DEVICE. H. Raszewski (to Midway Chemical Co., Jersey City, N. J.). U. S. 2,300,845, Nov. 3. A display assembly with a mop or the like, having flexible strands and a band to which said strands are secured and extending strip folded into multilateral form, said strip being disposed at the exterior of the strands in engagement with said band of said mop to support the band in elevated position.

FLOP-OVER BOX. W. G. Sleighter, Youngwood, Pa. U. S. 2,300,983, Nov. 3. A receptacle adapted to contain compost for mushroom growth, comprising an elongated rectangular box open at its top and bottom ends.

FOLDABLE DISPLAY BOX. W. E. Hanson (to Sample-Durick Co., Inc., Springfield, Mass.). U. S. 2,301,042, Nov. 3. A foldable display box, comprising a flat bottom wall, a superposed top wall of equal length and width, side walls interconnecting the top and bottom walls, said top wall being bent downwardly between its sides towards the bottom wall to form a trough.

DOUBLE DOOR DISPLAY CARTON. J. E. Messer, Cincinnati, Ohio. U. S. 2,301,310, Nov. 10. A combination shipping carton and display carton for merchandise, which in shipping condition comprises a pair of opposed side panels plus a pair of opposed panels, all of said panels including means cooperating to form a rectangular structure.

VEGETABLE AND FRUIT DISPLAY CONTAINER. V. A. Peterson, Palm Springs, Calif. U. S. 2,301,577, Nov. 10. A display container comprising a pair of side walls which gradually decrease in height towards their forward ends, a front wall and inclined rear wall, a reinforcing frame having parallel side members that are secured on the upper edges of the side walls of the container.

COLLAPSIBLE DISPLAY STAND. D. F. Snider (to The Forbes Lithograph Mfg. Co., Boston, Mass.). U. S. 2,302,919, Nov. 24. A display stand comprised of a back, spaced side arms, hingedly connected to the back, a front hingedly connected to the fore ends of the side arms, a bottom hingedly connected to the bottom and the back.

CLOSURE FOR CONTAINERS. J. H. Burnet, Glen Ridge, N. J. U. S. 2,302,417, Nov. 17. In a container, a body closed by a hollow top member of truncated generally conical shape terminating in a discharge opening.

CLOSURE MEANS FOR COLLAPSIBLE TUBES. F. Gill (to Aktiebolaget Observator, Stockholm, Sweden). U. S. 2,301,271, Nov. 10. In a collapsible soft metal tube a container portion and a neck portion having an upper inturned edge, with a valve body rotatably mounted in said neck portion between said division wall and said inturned upper edge, with a rigid sleeve member made of an inert material positioned between said neck portion and said valve body.

CLOSURE CAP FOR COLLAPSIBLE OR RIGID TUBES. T. F. E. Fuchslocher (to in part to H. M. Behrens, G. S. Tenderich and H. C. Alberts). U. S. 2,302,538, Nov. 17. A combination with a receptacle having a tubular neck serving as a discharge orifice, of a pair of complemental closure members associated with said neck to normally close the discharge orifice, one of said closure members having an extended valve head with a conical recess thereunder.

CAP FOR COLLAPSIBLE TUBES. T. F. E. Fuchslocher (to in part to H. M. Behrens, G. S. Tenderich and H. C. Alberts). U. S. 2,302,539, Nov. 17. A combination with a container having a tubular neck defining a discharge orifice of a pair of complemental closure members associated with said neck to normally close the discharge orifice.

CLOSURE CAP. T. F. E. Fuchslocher (to in part to H. M. Behrens, G. S. Tenderich, H. C. Alberts). U. S. 2,302,540, Nov. 17. In combination with a container having a discharge end, of a complemental tubular closure, members including a valve confronting a valve seat and discharge opening controlled therewith, said closure members having telescopically associated walls surrounding the discharge end of said container, for operative connection therewith.

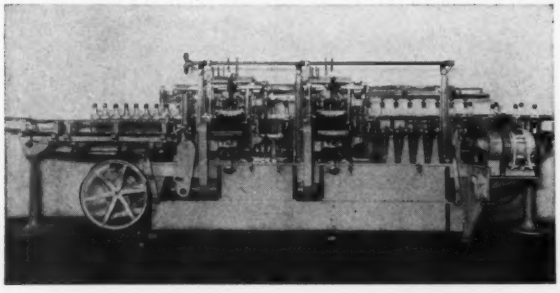
MACHINE FOR LOADING ENVELOPES. W. H. Alden, Jr., Bryn Athyn, Pa. U. S. 2,301,354, Nov. 10. A machine for loading envelopes including a compartment for supplying empty envelopes, one for receiving loaded envelopes and one for supplying "flapped" matter with which envelopes are to be loaded.

You'll never come to this . . .

. . . . if you take care of your
WORLD Automatic and Semi-Automatic LABELERS

WORLD Labelers are built to give years of continuously dependable service. Given reasonable care they'll see you through the emergency.

The men and machines that used to build WORLD Labelers are now heavily engaged in war production. But we're not too busy to help you all we can on all problems of conversion, service, lubrication or maintenance. Don't fail to get in touch with us.



Users of this WORLD Automatic *"Bee-Line"* Straightaway Labeler will assure you that it's a *considerable* improvement over the "two man power" labeling method indicated above. It applies front or front and back labels to any shape and size of glass container—steadily, safely and surely in a continuous, straight line, without stops, detours or collisions.

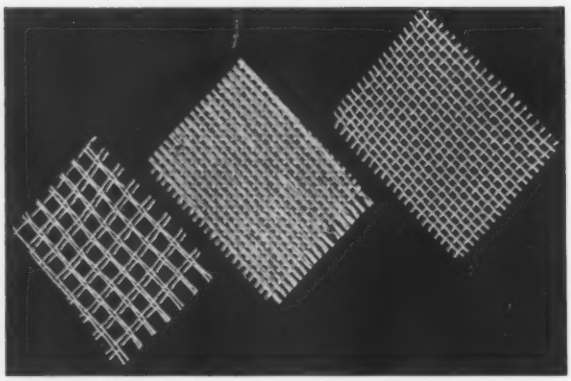
ECONOMIC MACHINERY COMPANY

Builders of World Automatic and Semi-Automatic Labelers for Every Purpose

Worcester, Massachusetts

NEW YORK PHILADELPHIA PITTSBURGH CHICAGO SAN FRANCISCO DENVER LOUISVILLE
SALT LAKE CITY EL PASO SEATTLE PORTLAND LONDON MONTREAL TORONTO WINNIPEG
SPOKANE VANCOUVER SYDNEY, AUSTRALIA WELLINGTON, N. Z. SAN JUAN, P. R.

Equipment and Materials



PAPER BURLAP

According to Matthias Paper Corp., a burlap paper developed by the firm will serve very well in most places where regular burlap was formerly used. It is made of tightly twisted strong kraft paper and has a high degree of moisture and water resistance. It is being manufactured into bags to hold potatoes, apples, used to cover barrel heads, wrap airplane parts and as a substitute in upholstering, as well as used as a substitute in other jobs which burlap has heretofore been called upon to perform. The fabric is reasonably water repellent just as it comes from the looms, but quantity orders can be treated for increased water repellency, mildew resistance, flame resistance, etc.

HEATING SPEEDS TINPLATE OUTPUT

Harnessed to save dwindling supplies of war-scarce tin, high frequency induction heating is now producing a smooth, shiny, corrosion-resisting finish on tinplate urgently needed to protect rations for the nation's armed forces. Already at work in a big steel mill, the first commercial installation is now producing about 60 tons a day of 14 inch strip—a substantial increase over the old rate. The new high frequency method of fusing tin was developed by Westinghouse research and radio engineers as an answer to the problem of boosting output to keep pace with rapidly growing requirements of the armed forces and at the same time use a minimum of tin. It was designed as the final step in making electrolytic tinplate, a process which uses only one-third as much tin as the system of dipping steel sheets into tanks of this molten metal. The need for a suitable tin fusing was so urgent that research work which would normally require two years was made in less than six months.

The advantages of the induction heating method are:

1. Avoids cumbersome furnaces which must be considerably longer than the induction heating coil.
2. No supporting rolls touch the metal while the strip is hot, thus eliminating the chances of marring the surface.
3. When the end of the coil of steel strip approaches the inductor heating coil the operation must be slowed to weld on another strip. The heat generated can be easily adjusted to compensate for the loss of speed, which cannot be done in a furnace.
4. The high frequency unit can be put directly into the electrolytic tinning line and can operate as fast as the strip can be plated.

Key units creating the high frequency tin-smoothing waves are vacuum tube oscillators, essentially the same as the transmitter of a radio station. Alternating current, similar to that used for home lighting was first converted to direct current, then fed to the oscillator tubes where it is "chopped up" into high frequency alternating current. It changes direction 400,000 times a second.

PHOTO-ELECTRIC CONTROL

United Cinephone Corp. has a photo-electric control to be used on weighing machines. It is an automatic cut-off for application to scales. Batch weighing, container filling and many other automatic weighing operations can be stepped up in speed and accuracy by use of this instrument, according to its manufacturer. Temperature, r.p.m., weight, current, liquid flow, in fact, any quantity measurable on an indicating instrument, can be controlled or can effect control by use of this unit, according to the corporation.

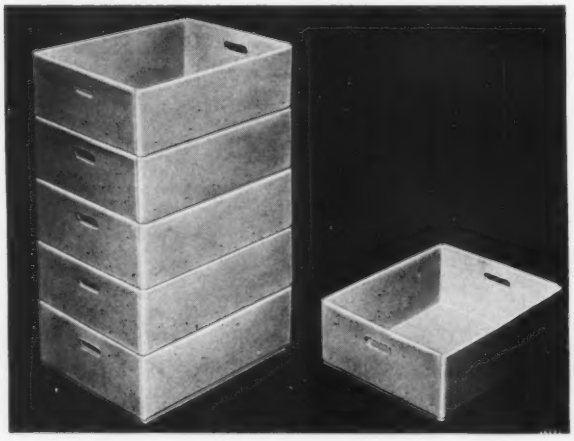
From the point of view of the scale manufacturer, simplicity and compactness of design should be of particular interest in the opportunity afforded for incorporation of the unit within or on the structure of a scale. The user of a weighing device will find application of the control to his scale an easily adjustable matter, manufacturer states. There are also possibilities for use in the meter field. This control may be applied to any (except very small) scale read, measuring or indicating instrument. Liquid or current flow may be maintained within predetermined minimum and maximum limits by utilizing two Scanner heads so mounted that each would be adjustable.

ROLLER GRAVITY CONVEYORS

A recent bulletin of the Lamson Corp. lists and describes the roller gravity conveyors which they are currently manufacturing. There has been a material reduction in sizes and variety. This has been brought about, the firm explains, by abandoning, temporarily if not permanently, types and sizes infrequently used and adding only those essential to the war program. A special table on selecting conveyors for various package sizes together with a number of illustrations of applications is included in the bulletin for the aid of prospective purchasers.

SHOP BOX

Further means for the conservation of metal has been developed by Container Corp. of America. The corporation designed a shop box of heavy solid fibreboard, when the scarcity of metal for this purpose became acute. The box has proved its worth, the firm states, during months of service in carrying parts from one department to another in metal working plants. A special nesting feature permits stacking the boxes in tiers to save floor and bench space. in plants and factories.



"RS"...moves into High...

*"RS" means "Research" in the Heekin factories. Today, "Research" is busier than ever before . . . and the lights burn at night where chemists work on problems brought to the canning industry by war. Day and night, huge batteries of Heekin color presses produce lithographed cans for defense and for war products. If you have such a problem . . . packaging a defense or war product quickly in tremendous quantities, we can help you. Maybe we can talk over your future packaging problems. In the meantime—Look Ahead.

THE HEEKIN CAN CO., CINCINNATI, OHIO

HEEKIN

Lithographed Cans

WITH HARMONIZED COLORS

Plants and People

Lee B. Morse has been appointed to the staff of first vice-president Norman F. Greenway, Robert Gair Co., Inc., New York, as manager of Industrial Relations in connection with activities pertaining to operating personnel in Sales and Production Departments. Mr. Morse is a graduate of Cornell Electrical Engineering and came with Gair in 1929 as an industrial engineer. He has been in charge of the Industrial Engineering Department since 1934. William J. Trimble has been promoted to manager of the company's Industrial and Engineering Department. He joined the Industrial Engineering staff in 1931.

Carl T. Collingham, formerly with Middlesex Products Corp. of New York City and Cambridge, Mass., is now with the Specialty Division, Bulkley, Dunton & Co., New York City. He will specialize particularly on their new line of waterproof, oil and greaseproof paper.

L. W. Hutchins, president of Sheldon, Morse, Hutchins & Easton, Inc., and director of Safety Research Institute, Inc., of New York City, has been appointed chief of the newly organized Education Unit in the Fire Defense Section of the U. S. Office of Civilian Defense. The function of this new unit in the OCD will be to direct public education on fire defense. It will also serve as a coordinating agency in matters of fire defense between the various OCD divisions and between the OCD and other government agencies.

To tell the consumer public about their participation in production of war materials, Shulton, Inc., known for Early American, Old Spice men's and women's toiletries, are advertising in 171 newspapers. The phrase "Toiletries and Tools for Victory" is used as the slogan in the ads. All of them carry a footnote asking the public's patience if, due to war conditions, they have been unable to secure Shulton toiletries. Shulton has converted part of its plant and machinery to the production of war materials, at the same time maintaining insofar as possible its civilian output of merchandise.

Captain Arthur L. Harris, Jr., executive vice-president of the Atlanta Paper Co., has been commissioned a captain in the Army in the Service of Supply. He was formerly assistant chief in the Bureau of Priorities at Washington, D. C.

Ralph Bradford, general manager, U. S. Chamber of Commerce, Washington, announces the appointment of Thomas W. Howard as manager of the Chamber's Department of Manufacture. He has had extensive experience in factory management and in the operation of manufacturing trade associations. As Controller of the National Electrical Manufacturers Assn., he promoted the use of uniform accounting procedures by its members and organized the extensive statistical activities of the association. Mr. Howard was for many years a member of the Society for Industrial Engineers and is now an officer of the National Assn. of Cost Accountants. He is the author of numerous treatises on management procedures.

War Damage Corp., an agency of the United States Government, announces the availability of War Damage Insurance for protection against financial ruin in the event of enemy attack. On December 13, 1941, following this country's declarations of war, the Federal Government, through the Reconstruction Finance Corp., announced the establishment of a one hundred million dollar war damage fund to meet the immediate demands for this kind of protection which arose throughout the United States and possessions following Pearl Harbor. Subsequently, this fund was increased to one billion dollars, the sole purpose being to provide temporary war damage protection for everyone, pending the time that a permanent system of war damage insurance could be put into operation. There was created by an act of Congress the War Damage Corp. with a capital of one billion dollars and with authority to provide protection against direct physical loss of or damage to described property "which may result from enemy attack including any action taken by the military, naval or air forces of the United States in resisting enemy attack." The free insurance which had been furnished by the Government ceased at midnight of the last day of June and the War Damage Corp. began operations on July 1, 1942.

Nicholas Hupalo, art director of Modern Packaging, has joined the armed forces and is now with the Medical Division, stationed at Ft. Jackson, South Carolina.

OBITUARY

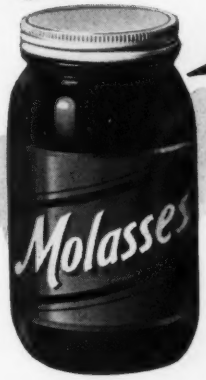
Albert R. Keene, who had been associated with the Pneumatic Scale Corp., Ltd., North Quincy, Mass., for the past 19 years, as advertising manager and sales representative, died December 9 while recuperating from an operation at the Quincy Hospital. He was 37 years old. He was past-president of the National Industrial Advertisers Assn., Boston Chapter, and a past member of the American Society of Mechanical Engineers.

Albert R. Keene

T. L. Taliaferro, general manager of Phoenix Metal Cap Co., died of a heart ailment Tuesday, November 17, at his home in La Grange, Ill. He was 62 years of age. Had he lived but a few more weeks, he would have completed 29 years of service with the company. His experience in container and closure fields was broad and diversified. The first machine for producing "flowed in" rubber composition gaskets used in vacuum sealing, sterilizing and processing was originated and patented by Mr. Taliaferro. He was responsible for many later improvements in machines and methods used in this manufacturing process, but the basic principle still holds. The first automatic ovens for oxidizing or baking lithograph inks, lacquers and coatings on metal plate are also credited to Mr. Taliaferro. These ovens have enabled metal decorators to decorate caps, cans, boxes, signs and many other metal objects speedily, uniformly and economically. It was also Mr. Taliaferro's realization of the need of standardization for glass finishes that was responsible for the initial efforts along this line. He began this work in 1919. Today, and for a considerable number of years past, there has been a standard set of blueprints for every type of glass finish and glass manufacturers produce glass finishes to identical measurements and tolerances. He was the chairman of the first Standardization Committee of the Glass Container Assn. in 1920. In 1934 he compiled a book entitled, "Standardization of Glass Finishes" which had to do with the early trials and tribulations of the Committee when it began its work.

T. L. Taliaferro

PRAISE THE COOK ....AND PASS THE MOLASSES—



IN spite of shortages and threatened shortages, there are still a lot of things that can be enjoyed in the good old American way. Molasses on hot cakes is one of them. There is still a plentiful supply for those who like this tasty treat.

Today, molasses is one of numerous products being packed in glass jars and sealed with Crown 63 C.T. Caps . . . the caps with the patented Deep Hook Thread that are easier to apply and easier to remove.

If, in order to conserve materials needed for Victory, you are confronted with a glass-packaging problem, you will find Crown Closures available in a wide variety of types and sizes to meet every need.

CROWN CORK AND SEAL CO., BALTIMORE, MD.

World's Largest Makers of Closures for Glass Containers

CROWN CLOSURES

CROWN'S WARTIME POLICY: *To supply closures, containers and services for packaging foods, beverages, chemicals, etc., needed by civilians and the armed forces. To build an ever-increasing volume of vitally needed weapons of war for our fighting men.*

For Your Information

At a recent meeting of officials of the leading trade associations, the matter of current changes in products and packaging was discussed. These changes generally are of two sorts and are dictated by the shortages of raw materials or constituents of packaging. The first class is that in which the product itself is changed in some minor particular without affecting its serviceability to any material extent. The second class is that in which the article itself is entirely unchanged but the package has been changed. It was pointed out that the sales people in the retail stores should be promptly advised of any changes in the character of the merchandise itself or in its packaging and that the matter of these changes and reasons for them should be explained to the sales people in order that the public may be properly informed, thus avoiding any undue sales resistance or questions that may reflect upon the quality of the products or presentations. The Toilet Goods Assn. believes it would be desirable to have a central clearing house for such information originating in the cosmetic industry and has offered the facilities of that association to its members in passing on word of changes in products or packages to the retail and wholesale trade associations. These associations in turn may then advise their members of such changes, the reasons for them and any suggestions as to how they may best be explained to the purchasing public.

As a definite means of giving encouragement, stimulating wider research and rewarding development work in the successful conversion of packages made from critically needed war materials to those made of folding boxboard, the Folding Paper Box Assn. of America is sponsoring a competition for the best conversion packages produced by a member of the industry and put into commercial use during the year 1942. The competition is open to all manufacturers of folding boxes in the United States and there is no entry fee of any kind. Entries may be made up until February 1, 1943, and sent to the Chicago office of the Association. Awards will be made at the annual meeting dinner to be held at the Blackstone Hotel, Chicago, on March 3, 1943.

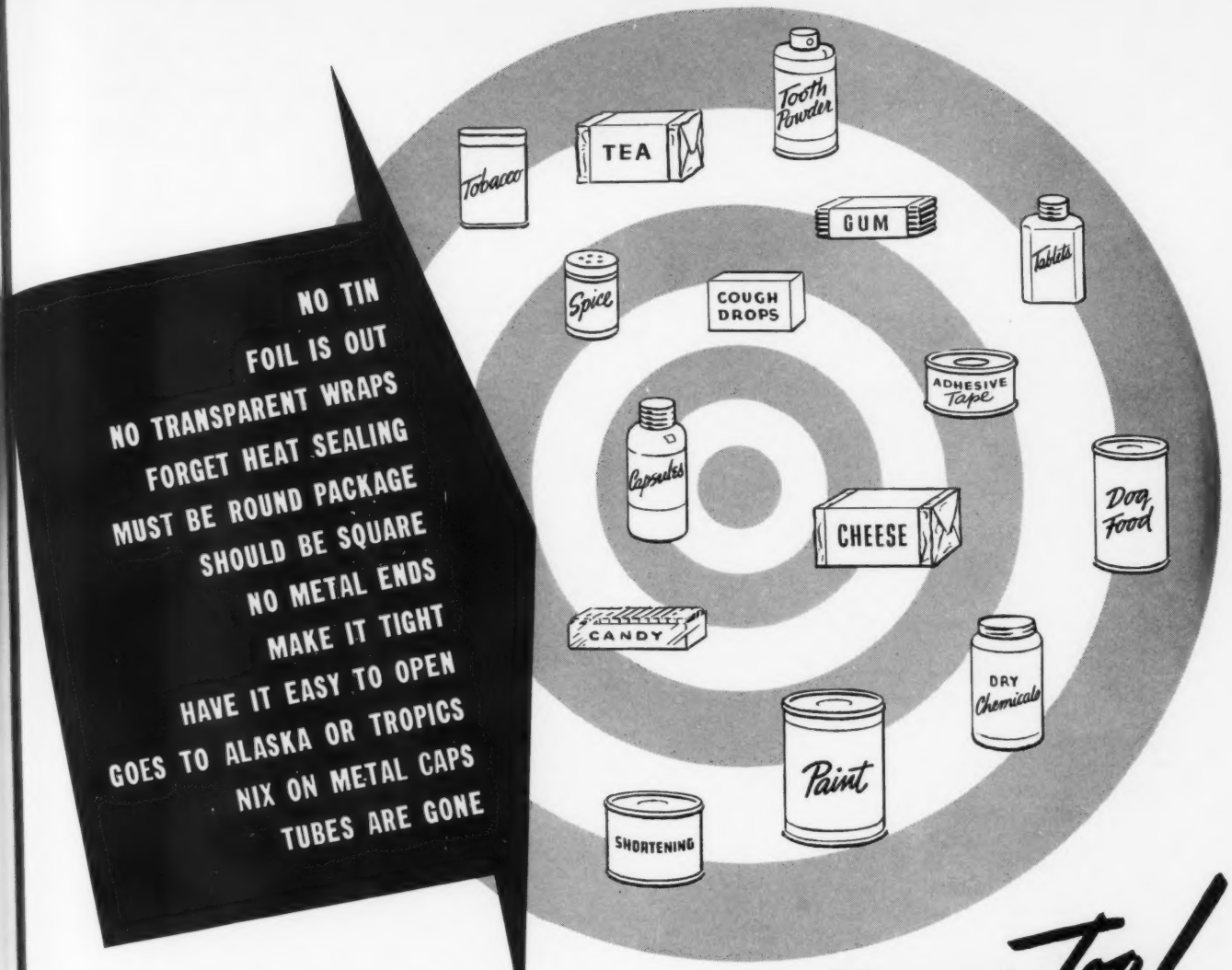
The Folding Paper Box Assn. of America also announces the organization of a Packaging Bureau. The scope of the bureau's activity is to assist the government on all packaging problems and to make serious attempt to convert to folding boxes those packages formerly made of critical materials. The bureau will accumulate, coordinate and disseminate the ideas of the means for the development of substitute packages for the war effort. A director of the bureau will be appointed with authority to appoint such committees as may seem necessary for the accomplishment of the purposes intended. Existence of the bureau will be for the duration of the war unless sooner terminated.

Regular canners' convention will not be held this January—neither canners, brokers nor canning machinery and supplies association will convene. A brief food processor's conference, shorn of all unessential features, was held in Chicago in December, which replaced the regular annual convention meeting. The majority of the sessions were closed, but at the opening general session, A. C. Hoffman, Director, Food Price Division, OPA, addressed the members on "OPA 1943 Pricing Policy." He said that grade labeling will be used on 1943 packs of canned fruits and vegetables as a price control measure. "Our attitude," he stated, "toward grade labeling, academically, is absolutely impersonal—but we do believe that it represents the best mechanical means of carrying out our canned goods price-control program. Fortunately, governmental standards are now in use and available for nearly all canned fruits and vegetables. These specifications, established and administered by the Agricultural Marketing Administration, will be incorporated by OPA in its price schedules. That has already been done in our schedules for beef, turkeys, dried beans, and potatoes and onions. Officials of the AMA have stated that complete inspection of the pack will be made by government graders. This, of course, assures that they will not have to grade at their own peril. The details of ceiling prices on glass-packed goods have not been finally worked out, but we will follow this general policy: It will be our aim to recognize the direct cost differences of packing in tin and glass." Mr. Hoffman also foresaw the necessity of some over-printing of present label inventories, and said that consideration in OPA schedules would be given to such costs, both on the part of canners and private label distributors.

On December 17, National Canners Assn. adopted a resolution asking that the government place no restrictions on processing of foods and allocate full amount of steel, tin and other materials needed in processing. Another resolution in reference to grade labeling was also adopted. It stated that the canning industry was convinced that the OPA proposal to incorporate in 1943 pricing regulations the compulsory use of collective grade labeling and to require over-printing of such collective grades on canned food labels were unnecessary for price control. The industry felt that compulsory grade labeling on canned foods would confuse enforcement of price ceilings. Since the OPA has announced that there will be regional price differentials with differing freight rates and varying permitted wholesale and retail markups, the same collective grade label on an identical product would, under proposed OPA regulations, have different ceiling prices in the same retail store and in competing retail stores. This would create, members of the canners association felt, consumer confusion and promote consumer distrust of both the industry and the proposed OPA pricing system.

A book which outlines the functions of cellulose plastics for war and is written in layman's language is "Cellulose Plastics in War and Industry," just issued by Celanese Celluloid Corp., a division of Celanese Corp. of America. It is a manual of specifications, properties and applications of sheets, rods, tubes, films and foils, molding materials, plasticizers, cements, dopes and glazing materials. It is written especially for the many development men and industrial chemists who are seeking in plastics an answer to the shortage problems that handicap America's production effort. It also contains considerable heretofore unpublished information.

The Rubber Reserve Co. has made a contract with National Synthetic Rubber Corp. for the operation of a new government-owned synthetic rubber plant to be built in Kentucky by the Defense Plant Corp., a subsidiary of Reconstruction Finance Corp., according to an announcement by Jesse H. Jones, Secretary of Commerce. The plant's output will be made generally available and allocated by the government, together with the products of other government-owned synthetic rubber plants. Formed for the specific purpose of operating the new government-owned plant, the National Synthetic Rubber Corp. is jointly owned by five long-established rubber companies which manufacture a wide variety of products ranging from motor car tires to coated abrasives and including scores of articles of vital importance to the war effort. The five independent companies which participate in the ownership of National Synthetic Rubber Corp. are Goodall Rubber, Inc., Hamilton Rubber Mfg. Co., Hewitt Rubber Corp., Lee Rubber & Tire Corp. and Minnesota Mining & Mfg. Co. W. W. Benner of Lee Rubber & Tire Corp. was chosen president of the National Synthetic Rubber Corp. and Dr. B. J. Oakes of Minnesota Mining and Mfg. Co., chosen executive vice-president and general manager in charge of operations at the plant of the corporation in Kentucky.



We're trying for bullseyes too!

•Fitting strange packaging materials to even stranger products—in a rush—with present equipment is a real job. The questions soon begin to pop faster than the right answers. And though in the work we're doing much has been accomplished in a short time—much more remains to be done.

Yes, we will give your problem the best our specialized experience and research can produce. But the solution may run into the obstacle of scarce materials or forming, sealing, filling, and product difficulties. That's why we ask you to give us all the time and cooperation you can—it will help to make better winners for both of us!

★ Ridgelo ★
CLAY COATED

COATED AND SPECIALTY PACKAGING MATERIALS
FOR CONVERSION AND ESSENTIAL USES.

MADE AT RIDGEFIELD, N. J., BY LOWE PAPER COMPANY

Representatives: E. C. Collins, Baltimore • Bradner Smith and Company and Mac Sim Bar Paper Company, Chicago • H. B. Royce, Detroit
Gordon Murphy and Norman A. Buist, Los Angeles • A. E. Kellogg, St. Louis • Philip Rudolph & Son, Inc., Philadelphia

Good-by hand bottling

(*Continued from page 94*) the production level. Space for 5,000 cases of filled bottles has tripled former storage capacity on the first two levels. The same increase is true of the upper sub-floor and second floor, where 15,000 cases of empty bottles in all sizes can be easily accommodated. Storage tanks, in which the Southern Comfort product remains only a maximum of 24 hours, are located on the ground level. Six 3,000-gal. units reach the height of the second floor.

With the line on the second floor across the center, ample storage space for empty glass is provided by storing cases around the walls, as well as on the sub-floor balcony above it. All glass is bought locally by Mr. Fowler in East St. Louis, Ill., across the river and brought to the plant for unloading at the rear of the building. Here an elevator, built for two tons' capacity, takes glass directly to the balcony, where it can be fed as required to the bottling line. Feeding of the line is accomplished by a gravity roller system from the balcony to the front end of the line.

The line packages fifths, pints, half pints in production. Empty glass in these sizes is stored in varying sections of the upper balcony or production floor and is routed to the line according to whichever size is needed. There is a three-month supply of all glass on hand, and production is made up in advance of the next day's requirements—for example, inasmuch as the line produces fifths, 75 per cent of its working time, there is 75 per cent of the storage space given over to fifths. Twenty per cent is pints and ten per cent, half pints. All sizes are stored on wheeled trucks, by which 40 cases can be wheeled to the head of the line as desired and indicated by a supply requisition made out by the line foreman and sent to the storeroom space daily. By thus storing empty glass on truck dollies, there is much less work in order to supply the line and the day's needs can be rolled up in a few minutes.

The short conveyor used takes cases at a 40 degree angle directly to the head of the line, where two girls unpack the cases. Bottles go on the belt conveyor which carries them through cleaning, filling, labeling, stamping and capping machines, while the empty case is lifted on to a two-plane overhead conveyor which carries empties directly over the bottling line, depositing them at the discharge end. One girl supervises, two place strip stamps, three operate the seal-sealing stamp, two attach a booklet of recipes, two more a postcard for customer requests. Two at the end are busy repacking. At full-capacity operation of 300 cases of fifths per hour, glass, after filling, can be repacked in the same re-shipper carton in which it came through the first conveyor. All girls, although specialists, are changed from job to job hourly, because Mr. Fowler is convinced that this makes for happier working conditions.

Capacity of the line is heavy—300 cases of fifths, 300 of pints, 300 half-pints per hour. In addition, production may be speeded up by reason of the fact that in half an hour the line can be altered to accommodate any of the above sizes. Each machine can be reset simply for a separate size bottle and, thus, the same line can package fifths and half pints on the same day, with only a short pause for re-setting of equipment. By insisting on this feature, Southern Comfort saved the cost of a secondary line for smaller bottles.

Filled cases are routed according to demand, through a very simple operation. All go to the floors below either by the elevator or a gravity roller track—sufficient storage stock being placed on dolly trucks and delivered to the elevator. The rest shoots down the conveyor at the end of the line to the sub-floor beneath, where cases are stacked on wheeled trucks in 2,000-lb. lots. Enough to handle average shipments is always maintained on the sub-floor, with reserve going to the ground level by conveyor or elevator.

A highly clever method of complying with state laws governing liquor storage as well as quickly loading trucks has been developed by Mr. Fowler, as the next step in production. After the filled cases go to the sub-floor storage space, they are laid out in consignments according to demand, with trucks calling for loads at a separate doorway in the alley. Here is located a folding metal door of 16 by 12 ft. in dimension, with a truck dock. All loading is handled here. However, as a statute states that display materials for the promotion of a liquor may not be stored contiguously with the actual bottled goods, Southern Comfort Co. has split the first two levels into two rooms, partitioned off into liquor stocks and display media such as window cards, signs and display stands. With the loading dock in the direct center rear of the building, it is now possible to roll both cases of Southern Comfort and cartons of display media down into the truck by means of another roller conveyor extending from the dock level to the upper first-floor balcony. This conveyor is mounted on rubber-tired wheels and on pulleys on a greased bar at the top, permitting it to slide to either side of the partition. Thus, when a load is placed, the conveyor feeds cased liquor on one side of the partition until the load is complete, then is rolled to the other side, where the process is duplicated with advertising materials. A saving of more than an hour per truck load has been accomplished by this innovation. When loads must be made rapidly, both the loading and unloading dock are pressed into service, with the elevator handling a large part of the total.

Flow of liquor through the building has also been speeded up with gravity as the agent. One-half the top floor balcony is the receiving room, from which the liquor flows to rectifying equipment below on the second floor. From that point it is pressure-pumped through filters and then flows into the six 3,000-gal. tanks, serving the filling equipment on the line.

"We're one of the smallest packaging firms in the middlewest," Mr. Fowler summed up the arrangement. "However, we have planned the bottling system to enable us to meet any enlarging business conditions, and believe it ideal for liquor production such as ours."

Credit: Machinery by Pneumatic Scale Corp., Ltd.

Cosmetics through wars

(*Continued from page 62*) and the lady or gentleman would pat his or her wig gently to take up some of the wig powder, then dab the face to absorb the perspiration.

After watching this casual habit for some time, Bourjois got an idea. Why not make a special powder for the face—a face powder? He busied himself in his laboratory and created a fine, perfumed and absorbent powder, which he packed in tiny round boxes. They were made very small because they were to be carried at the wrist and hidden in the lace ruffles of the sleeve. A perspiring face in those days was carefully dried by taking some of the powder on the handkerchief and patting it over the features. By 1830, however, people were using the powder in the way we understand make-up today. They kept the powder on their dressing tables. They used it not just to absorb the moisture on warm faces, but as a complexion aid. For this purpose, the small boxes were inconvenient and they were emptied too

It's A LITTLE CAN WITH A BIG JOB!

PHOTO BY U. S. ARMY SIGNAL CORPS

AFTER target practice . . . or after actual combat . . . a soldier's first duty is to see that his rifle is thoroughly cleaned.

The Army issues compact cans of Rifle Cleaning Fluid to make sure all corrosive action in the bore of the rifle is checked at the first opportunity . . . and Crown is proud that much of this cleansing compound is packed in Crown Cans.

So another small Crown Can is playing a big part in the war effort by helping to keep many Garand rifles in tip-top condition and ready for action all around the world!

CROWN CAN COMPANY, PHILADELPHIA, PA.
Division of Crown Cork and Seal Company

★ ★ ★ ★ ★ ★ ★ ★ ★

CROWN CAN

quickly. Bourjois therefore began to market his Java face powder in larger boxes, but bearing the same design. Nothing was changed but the size. The average woman who goes into her favorite store now to buy a box of Java face powder has little idea that she is purchasing it in the same kind of green, white and black container that housed it back in the early part of 1800.

People of the nineteenth century were much like people today. They liked to have cosmetics—such as they had—named for favorite actresses, the heroine of popular novels or the socially important. Manon Lescaut was the current popular heroine about 1850. She was the much-discussed character of a French novel by the Abbé Prevost. Bourjois named his new face powder for her. On the lid of the round box in a flower and scroll frame was the picture of a French beauty—an idealized portrait of Manon, that lady of fiction who later afforded the subject matter for three operas. Patrons of the Metropolitan Opera during any current season when *Manon* is sung could obtain a very good idea of how the original Manon appeared to Frenchmen of her own day, by buying a box of Bourjois's Manon Lescaut. There is her portrait still on the box, wreathed with the same delicate flowers. The Bourjois people say her picture advertises the powder today just as it did when she was the heroine of a best seller of the 1850's.

Pierre François Pascal Guerlain founded his perfume business in 1828 in the shadow of the Arc de Triomphe. His father was an amateur botanist of standing who had gathered around him an extraordinary library of books about fragrant plants. Pierre from boyhood read the books avidly. When he was old enough to start a business of his own, he began to make, not perfumes, but a perfumed pomade for the lips. This pomade is still made by the present house of Guerlain from the original formula and sold in the same sort of little, round leather case in which the English belles of the Regency bought it. It was called "Baume de la Ferté." Later, Guerlain added to it a liquid coloring to make what, the firm believes, was probably the first lipstick, created for Comtess de Castiglione, a lady at the court of Napoleon III.

Inspiration for the Guerlain packages was derived mostly from the works of art the family had collected in their homes. For instance, the design of the box l'Heure Bleue, was taken from old 18th Century prints depicting country scenes such as fishing, hunting and riding. This particular package was put on the market in 1912. The illustration on the paper as well as the box itself was among the earliest elaborate perfume packages. Before that, only very plain bottles and boxes had been used. This was a very radical departure for Guerlain and was considered quite revolutionary in those days. The design of the package has never been changed and is still a favorite today, though it was considered very conservative in recent days of more elaborate packaging.

Anyone glancing over these cosmetic packages in a department store practically anywhere in America cannot help but be amazed at their vitality and their steady sale from generation to generation—chiefly by reason of personal recommendation and mother-to-daughter tradition. The packages are remarkable not because of any startling effects they create, but because they are simple in design, are not over-decorated and express, for the most part, a kind of universal good taste. Most of them were packaged when packaging was scarcely a toddler and materials for packaging were of the simplest. Now, again, when the greatest material economy must be used, these packages go on in their unchanging way, serving as good salesmen for their products and acting as constant reminders to the public of their makers.

Posters help balance—

(*Continued from page 78*) through response to an offer in magazine and newspaper advertisements and partly by means of store distribution in the counter dispensing units which the company is furnishing to the trade.

Grocers find that the plan does help, that it encourages women to shop every department in their stores. Women make use of the weekly check list of assortments and spread purchases throughout the store. They learn by means of the illustrated menus to switch from one food to another in the same group, still keeping a well balanced meal. By using the meal planner folder, women come prepared early in the day and early in the week to buy large orders, spreading the grocer's traffic throughout the whole week and aiding in the elimination of the week-end peaks. Nobody knows better than the grocer, probably, how hard it is to get experienced retail help these days. Thus ready-prepared shopping lists help speed the flow of store traffic and make it easier for inexperienced clerks to fill orders. Grocers who deliver find they can deliver less often and more efficiently when shopping is thus concentrated and still keep customers satisfied.

Del Monte has also helped the grocer take care of the peaks of holiday shopping by issuing special posters for Thanksgiving, Christmas and other days. In considerable detail, these posters explain why many foods, whose presence on the table at a particular holiday meal had become a tradition, might be unobtainable this year.

The Del Monte campaign is directed toward the bringing about of orderly distribution of foods through regular retail channels. "Above all," copy on one of the display pieces states, "don't buy more of *anything* that you'll need. Let's prove that this is still the land of freedom—that as individual citizens we are big enough and broad enough to share—and work out our problems together, through the voluntary and intelligent cooperation of all."

Washington review

(*Continued from page 98*)

● **Zinc Restrictions**—Conservation Order M-11b has been further amended to prohibit the use of zinc as a protective coating or plating other than paint on many civilian items. Under the ban are cosmetic containers, compacts, lipstick holders, notion dispensers.

● **Zinc for Printing**—Users of zinc plates for printing will be permitted an increased use of zinc by Amendment No. 1 to General Conservation Order M-99.

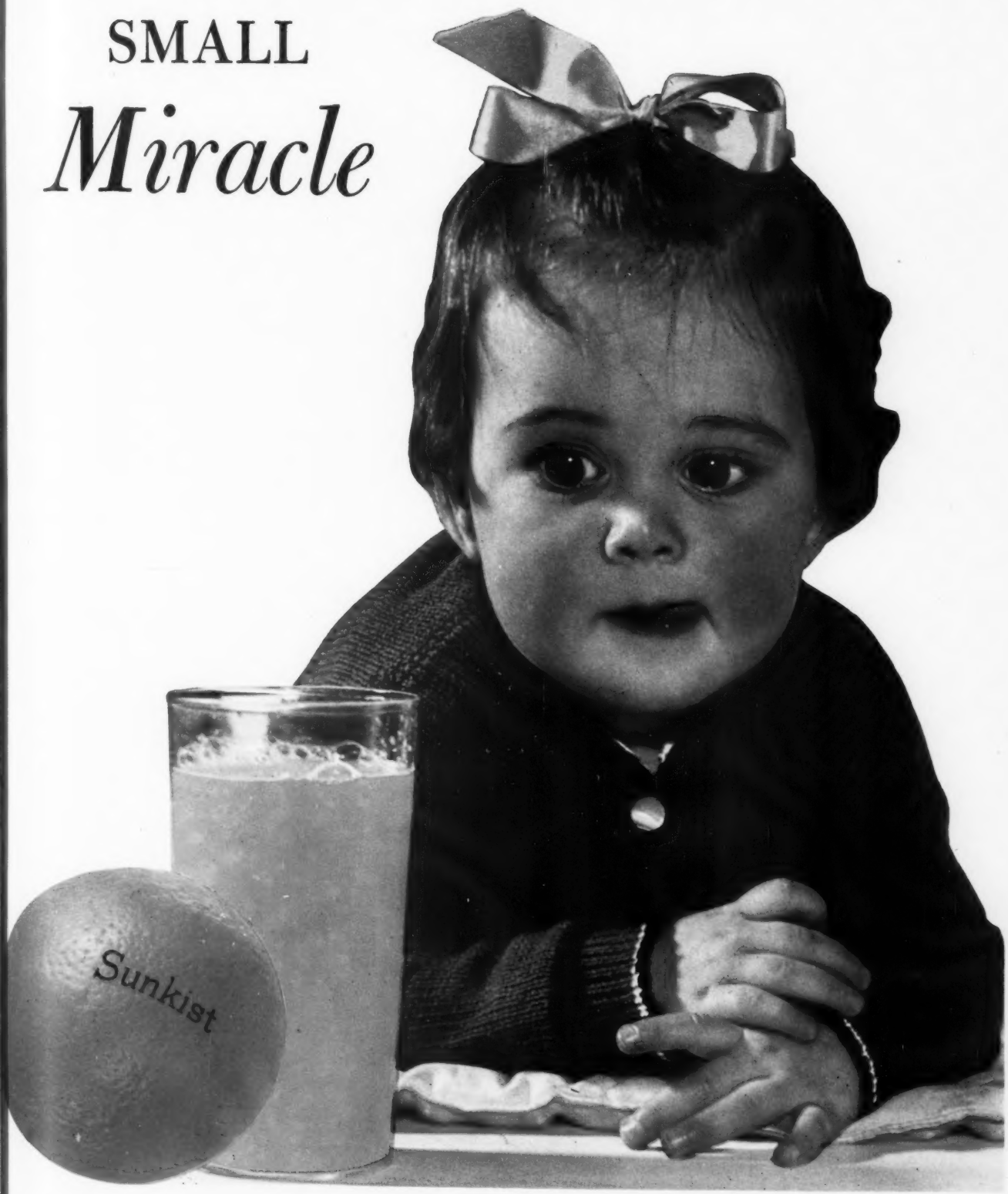
● **Titanium Now Permitted**—Order M-44 controlling titanium pigments has been revoked. Because of increased supply, these products are no longer under control.

● **Glass Containers**—The paint industry, according to WPB's Schedule E to Limitation Order L-103, effective Dec. 7, must conform to additional standardization of glass containers so as to avoid the use of metal to make molds for special designs.

● **More Trouble for Closures**—Dec. 5 amendment to Conservation Order M-126 makes it clear that closures as well as containers for certain listed products are prohibited.

SMALL

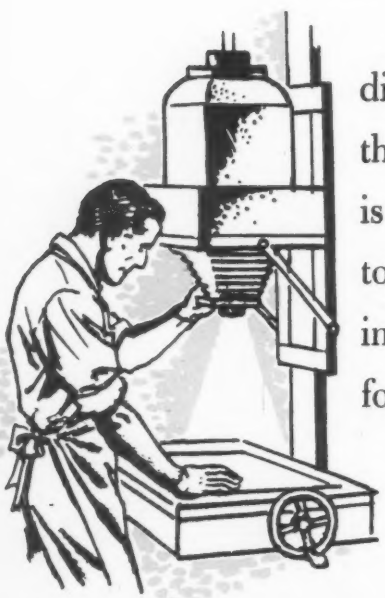
Miracle



"Having two pennies in the marketplace... with one I will buy bread for my hunger, and with the other hyacinths for my soul..."

The sentiment is so old that its authorship is long forgotten, but the sense is shining now. Poetry, perhaps, but practical merchandising as well. Because sometimes the seller can combine hyacinths *and* bread . . . as Sunkist did last summer.

The baby on the cover was a Sunkist display. The original was a Kodachrome snapshot. The enlargement to life size involved darkroom virtuosity of an unusual order. The result on paper and board made us proud. Subsequently, Harold J. Ackley, manager of the Dealer Service Division of the California Fruit Growers Exchange wrote:



"Since I last saw you, we have made rather wide distribution of the Sunkist Baby easel. The reception given this display has been sensational. The greatest problem is keeping the easel on display in stores. Customers try to beg, borrow or steal the displays . . . One large grocer in Milwaukee informed us that forty customers had asked for the Sunkist Baby easel . . ."

Little Miss Sunkist was later an Award winner, featured in magazine advertising and on outdoor boards. To take care of requests for reprints, the California Fruit Growers Exchange ordered fifteen thousand, reordered again.

(*We held out a few, in case you want one!*)

No other display piece in recent years elicited so much interest from the public, stopped so many women shoppers, gained so much good will for its sponsor.

The morning mood of the housewife shopping . . . is more mixed than ever these days. For two years her dollar has been slowly dwindling, but the three meals per day quota still stands. After the bread and butter and staples are secured, she must watch to come out even. Strawberries must be balanced with hamburger, beefsteak with rice pudding. Groceries fight for a place on the budget with the beauty parlor, baby shoes, and repairs for the refrigerator—to say nothing of music lessons for Junior. Taxes and shortages infringe on all current wants and old buying habits. Making the sale in wartime is harder than before. . . . And store displays can be the same old afterthoughts, carrying the same cliches; cheaply designed and cheaply produced, doing little or nothing noisily and in bad taste . . . or they can be hyacinths.

Any lithographer can supply paper, board, presswork and ink. Time and material costs run about the same in any good

lithograph shop. But the difference in the best display and the ordinary is—hyacinths! Brains and skill and experience, judgment and taste; and beyond all of these, dissatisfaction with the ordinary, and the prevailing ambition to do something better—result in something consistently better coming out of our pressrooms.

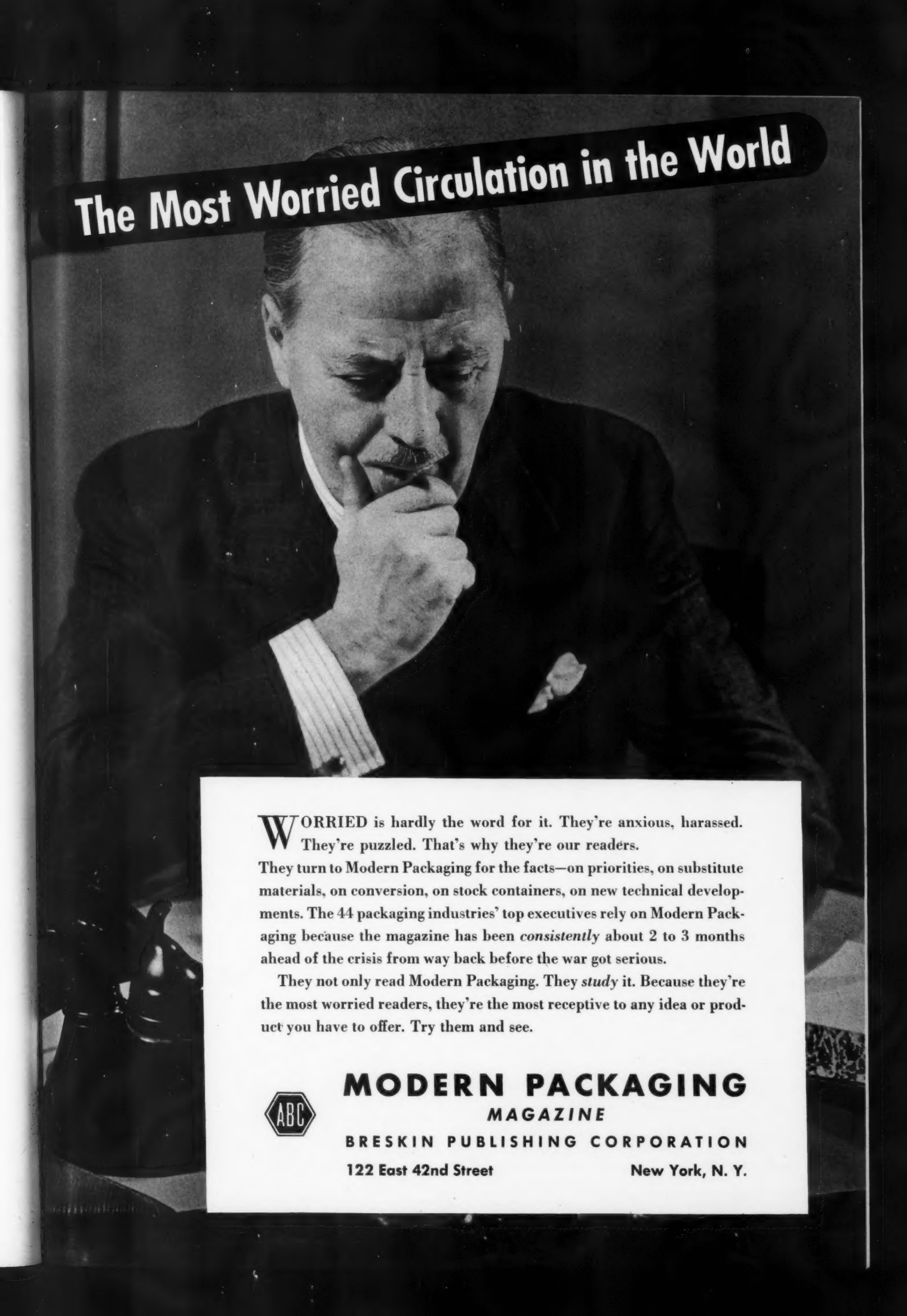
We can't promise a minor miracle such as the Sunkist baby; or that the public will regard your display as an *objet d'art.* But if you have a good display projected, Einson-Freeman can promise to bring out all the best in it . . . And if you could use better display ideas, more merchandising in your display, better art and execution, Einson-Freeman can contribute something worth while—because it has something worth while contributing . . . Worth while investigating, too . . .

Call us in . . . Maybe we can add a hyacinth or two.

Einson-Freeman Co., INC.

OPPORTUNISTIC LITHOGRAPHERS

GENERAL OFFICES • STARR & BORDEN AVES. • LONG ISLAND CITY, NEW YORK



WORRIED is hardly the word for it. They're anxious, harassed. They're puzzled. That's why they're our readers.

They turn to Modern Packaging for the facts—on priorities, on substitute materials, on conversion, on stock containers, on new technical developments. The 44 packaging industries' top executives rely on Modern Packaging because the magazine has been *consistently* about 2 to 3 months ahead of the crisis from way back before the war got serious.

They not only read Modern Packaging. They *study* it. Because they're the most worried readers, they're the most receptive to any idea or product you have to offer. Try them and see.

ABC

MODERN PACKAGING
MAGAZINE
BRESKIN PUBLISHING CORPORATION
122 East 42nd Street **New York, N. Y.**

Psychometric testing

(*Continued from page 87*) item or on an overall picture, the rejection extends back midway to the time of the last study and midway between the present rejection and the next acceptable sample. Possible deviations are:

I. External Appearance. This item covers the general external condition of the bottle. The examination includes the careful inspection of:

1. Small noticeable glue smudges near the Federal Stamps.
2. Glue smudges on the sides of the bottle near the edge of the front labels.
3. Crooked seams in the bottle.
4. Defective glassware—stones, air bubbles, cracks, etc.
5. Leakers.
6. Powder and dust which is not easily rubbed off.

II and III. Front and Back Labels. The requirements for a good rating on the front and back labels are identical. A good label is one properly placed, smooth and straight. The deviations from a good rating are:

1. Label pushed to one side of the bottle or panel.
2. Label crooked.
3. Label placed out of panel.
4. Small and large air bubbles in the label.
5. Dirty labels (fingerprints, smudges or dirty rags used to rub down the labels).
6. Scuffs—large and small.
7. Creases—large and small.
8. Deteriorated label—faded colors.
9. Asymmetry of the label borders.
10. Labels loose at the edges.
11. Water streaks on the labels.
12. Blisters caused by picker marks.
13. Missing labels.

IV. Federal Stamps. On a good package the eagle on the Federal Stamp is correctly centered on the cap and the ends of the stamp adhere to the center of the neck or shoulders of the bottle. The deviations are:

1. Eagle off center of the cap—forward or backward.
2. One end of the stamp lower than the other.
3. Eagle correctly centered on cap but the ends on shoulders or neck are crooked.
4. Eagle correctly centered but ends curl up on neck or shoulders.
5. Crumbled and twisted stamp.
6. Glue stains on the stamp.
7. Mutilated stamps.
8. Stamp not aligned parallel to front label, which is the point of orientation.
9. Faulty cut of the stamp.
10. Missing stamp.

V. Secondary Closures. Specifications for these are:
Half seal. One-third on cap; two-thirds on bottle.
Full seal. Seal flush with cap.
Tolerance limits for variation from specifications are allowed. The deviations are:

1. Seal placed above or below the required position.
2. Seal covers the serial number of the Federal Stamp.
3. Crooked seal. 4. Flush with top of cap. 5. Torn and wrinkled. 6. Seal turned under. 7. Missing seal.

VI. Neckbands. A neckband is rated "good" if the two ends meet just below the center point and are symmetrical and flat on the bottle. The deviations are:

1. Ribbon not symmetrically placed.
2. Ribbon meets above or below center point.
3. Ribbon not flat on bottle. 4. Ends loose. 5. Missing neckband.

VII. Medallion. The medallion is rated "good" if it is placed in the center of the panel, is straight and sticking to the bottle. The deviations are:

1. Medallion crooked.
2. Not glued down.
3. Colors blurred into each other.
4. Deteriorated.
5. Blisters.
6. Missing medallion.
7. Creases.
8. Dirty.
9. Placed out of panel.

VIII. Clarity. A rating of "good" is given to a clear bottle of whiskey. Possible deviations are:

1. Carton dust. 2. Dust from wooden caps. 3. Carbon dust. 4. Cap dust. 5. Filter threads. 6. Dirt. 7. Glass. 8. Cloudy or off-color whiskey.

IX. State Stamps. A good stamp is one placed smooth and straight in the proper position. The deviations are:

1. Mutilated stamp. 2. Wrinkled. 3. Not sticking to bottle. 4. Stamp missing.

In order to compare the quality of the work of the various plants, the Central Office constructs a chart of the various plants showing the average rating on the same item for each plant for each week. These results are sent to the individual plant managers and have been found to be very helpful in suggesting weak points of quality.

By building up cooperation and good rapport between the packaging representative who conducts the studies and the bottling house management, it has been possible to bring forth new ideas, suggestions and procedures with resultant improvement in the finished package. Appreciation is extended to Mr. S. Dubin for his very valuable work in this testing program.

Functions of Laboratory

The function of the Quality Packaging Laboratory is

1. Evaluation of the merchandise produced on the lines in order that only the highest quality merchandise shall be produced.
2. It serves as a check on other departments.
3. It has produced valuable data which have been used in establishing specification for labels, glassware and other raw materials.
4. The results may suggest to management the need of new operational procedures for the production of high quality merchandise.
5. The Packaging Laboratory prohibits the shipment of inferior merchandise without reconditioning.
6. It acts as a brake on production of inferior packages.
7. The constant effort needed by every individual to produce a better package results in a higher overall production efficiency for the plant.

NOT THE ONLY KIND OF SCRAP...

This war has taught us to scrap more than just metal and rubber . . . . a lot of old ideas, packages and adhesive formulas have had to be thrown on the junk heap, at least for the duration.

We have been faced with the twofold problem of developing successful adhesives for the substitute materials flooding the packaging market, and of creating these new adhesives from materials that are non-strategic and readily available.

We have managed to lick this twin dilemma, and come up with some additions to our more than 700 adhesive formulas that answer the new problems bothering most packagers. We'll be glad to send you samples.

Our government is showing increased interest in waterproof qualities of containers going over seas. For sealing or fabricating cases for export call on us. If the glue is waterproof, Union sells it.

Established 1866

Union Paste Company

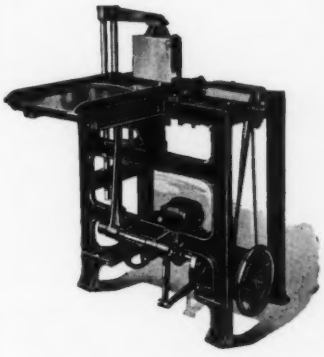
1605 HYDE PARK AVENUE • HYDE PARK, MASS

YOU'LL BE THANKFUL

that you kept your machines

IN FIRST CLASS OPERATING CONDITION

Continuous performance and maximum production are obtained when your machines are operating efficiently. No time is lost. Every minute counts. Inspect your machines regularly and keep them clean, well oiled and greased.



This PETERS JUNIOR CARTON FORMING AND LINING MACHINE sets up 35–40 cartons per minute, requiring one operator. After the cartons are set up, they drop onto the conveyor belt where they are carried to be filled. Can be made adjustable to handle several carton sizes.

This PETERS JUNIOR CARTON FOLDING AND CLOSING MACHINE closes 35–40 cartons per minute, requiring no operator. The cartons enter machine on conveyor belt, as open, filled cartons and leave machine completely closed. Can also be made adjustable to handle several carton sizes.

If you desire repair parts, do not hesitate to order them. It is imperative that all existing machines operate at maximum efficiency and we will make every effort to "Keep 'em Running."

With all of its facilities de.oted to the manufacture of war equipment, Peters is contributing directly to the war effort.

PETERS MACHINERY COMPANY

GENERAL OFFICE AND FACTORY

4700 RAVENSWOOD AVENUE, CHICAGO, ILL.

SPOTLIGHT YOUR PRODUCT IN LUSTEROID

•LUSTEROID•LUSTEROID•LUSTEROID

Pays BIG DIVIDENDS in Savings and Sales . . .

There are many sound reasons why merchandising-minded package designers are looking to LUSTEROID to fill their future requirements.

They like the distinctive eye-appeal of LUSTEROID vials and tubes which assures perfect visibility while protecting the product.

They like LUSTEROID'S light weight without sacrifice of strength or rigidity.

They like the complete range of colors, both transparent and opaque—so important in dramatizing the product.

They like LUSTEROID because it saves work and money. No protective partitioning or special packing required. No labels to affix, since the design and sales message can be reproduced in color as an integral part of the container.

LUSTEROID vials and tubes come with cork, slip-on or screw-cap enclosures in standard diameters from ¼" to 1¼" and lengths up to 6".

Write for full details

LUSTEROID CONTAINER CO., Inc.

Formerly Lusteroid Division of the Sillcocks-Miller Company

10 Parker Ave., W. • South Orange, New Jersey

Continuous-thread closure

(*Continued from page 63*) a tight seal and still permit easy handling in production.

The glass supplier agreed that he could maintain a neck ring tolerance on the jars of .015 in. A tolerance of .009 in. was allowed for the cap thread diameter. Jars, paper capped in this manner, were compared with regular metal capped jars when stored for prolonged periods at temperatures which increased vapor tension to limits likely to be experienced during market life. These studies showed an average moisture loss under paper closures in one week of .83 per cent, 1.44 per cent in two weeks, 1.88 per cent in three weeks; under metal closures of .86 per cent in one week, 2.65 per cent in two weeks and 2.78 per cent in three weeks. Loss at room temperature was insignificant.

The company has also experimented with cap thread tolerances up to .020 in. over the maximum jar thread diameter with good results for easy cap application and for providing a water vapor-tight-seal. However, they feel more experiment should be done before they are convinced that this is more practical and safe than a maximum cap thread diameter clearance of .009 in.

Credit: Paper closures, F. N. Burt Co., Inc. Glass jars, Maryland Glass Corp.

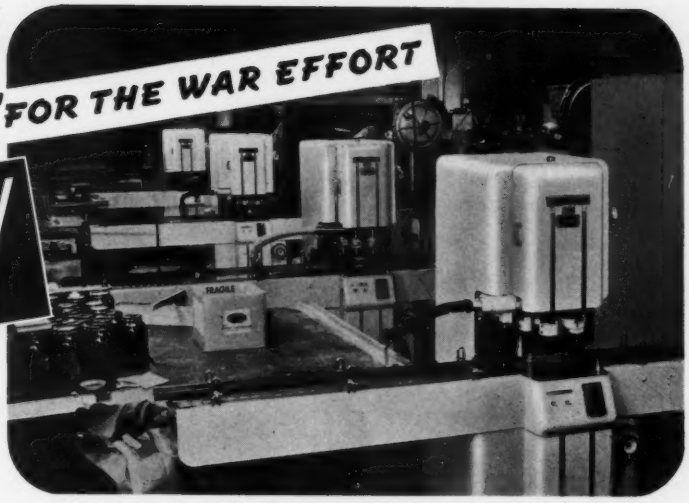
Giant "gas masks"

(*Continued from page 88*) Now a closet-like booth equipped with a small odor adsorber unit gives him virtually an Alpine oasis to sniff in and his research is much simpler and his results more dependable. Air-conditioned railway cars are finding that recirculating the heated or cooled air through activated carbon makes it infinitely more agreeable to passengers. The management of a prominent restaurant found itself faced with legal prosecution over the nuisance created by its offensive kitchen exhaust. Odor adsorbers, not lawyers, solved the problem.

The meats and produce stored in commercial refrigerators and rural locker plants frequently suffer from "flavor transference." With air circulating odor adsorbers there is no longer any need for frequent costly airings. In automatic dial telephone exchanges "channel" noises are caused by tarnished silver contact points. Tarnish is a film deposit left by certain gases, particularly sulphur dioxide, which are always present in city air. By adequately sealing the exchange and admitting air only through carbon adsorbers in the same manner as the bakery, already described, the tarnishing was eliminated. In New York a great sewage disposal plant, maintains amicable relations with an adjacent hospital and a playground, thanks to its reliance on activated carbon.

There are literally hundreds of interesting case histories where gas adsorbers have solved exasperating problems but their most significant use is in the field of air-conditioning. All air-conditioning systems are designed to treat more outside air than necessary, because the outside air required is determined entirely by the gaseous and odorous impurities generated within the conditioned enclosure—from food, tobacco, people, manufacturing processes. Only a small fraction of this air is needed for oxygen requirements. The balance is for replacement and dilution of the accumulating contaminations. The cooling in summer and the heating in winter of outside air is a big factor in air conditioning cost.

ABBOTT LABORATORIES Save "MAN HOURS" FOR THE WAR EFFORT with Consolidated KOTTONERS



Abbott Laboratories have recently installed their fourth Consolidated Kottoner at their North Chicago plant. The first Kottoner, installed in 1940, showed such savings in labor and time over previous methods of wadding, that Abbott was able to secure the necessary preference ratings for three more machines.

Fully automatic, the Consolidated Kottoner speeds up any packaging operation where cotton or similar wadding material is inserted in containers. Drawing the wadding from a completely enclosed and contamination-free supply chamber, the machine cuts it to proper length, inserts it in containers, firmly compacts it, and returns the container to the conveyor line. Speeds range from 40 to 70 containers per minute.

Our complete facilities are devoted to building equipment to further the war effort. If yours is an essential industry, you can doubtless obtain the necessary priorities for the equipment you need. We are maintaining service and repairs on Consolidated machines already in operation.

CONSOLIDATED PACKAGING MACHINERY CORP., 1400 West Ave., Buffalo, N. Y.

MANUFACTURERS JOBBERS and SHIPPERS

ARE INVITED TO TAKE ADVANTAGE OF THIS SUCCESSFUL 25-YEAR OLD EXPERIENCE

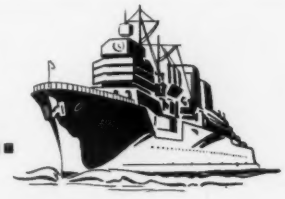
BORN in one war year (1917) Mid-States Gummed Paper Company meets the problems of World War II with the invaluable experiences gathered during the intervening 25 years of working with special types of adhesives, coating, paper, cloth and other materials, and in combining them.

Draw on this experience as freely as you will. Today as in 1917, we enjoy the same management, hold to the same principles, and aim for our same objective—"To Serve Better".

Mid-States Laboratories are here to serve YOU. Consultation is invited.

MID-STATES GUMMED PAPER CO.
2515 SO. DAMEN AVENUE • CHICAGO

WORKING... *with the* ARMY *and* NAVY



The War Production Board has asked that we devote our entire productive capacity to products essential to the winning of the war. We have responded willingly.

We regret that this may interfere with the needs of the paper industry with whom we have worked consistently for over 60 years.

We will continue to furnish replacement and repair parts for our equipment where priorities can be furnished which will meet with the approval of the War Production Board.

If we can advise you relative to your production problems, do not hesitate to call on us at any time.

When war clouds are lifted we will be with you again in the development of a larger and better paper industry for all of us.

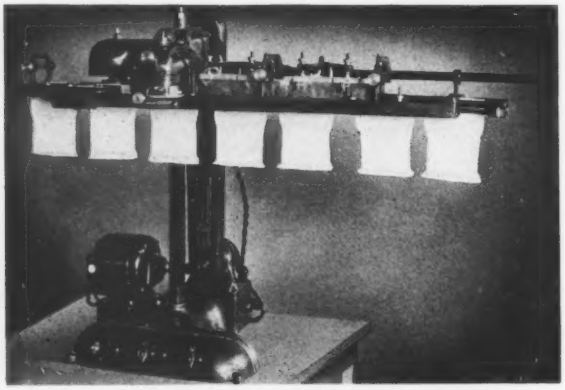
HUDSON-SHARP
MACHINE CO • GREEN BAY • WIS

We Are Proud

OF THE PRODUCTION DIRECTED TOWARD WINNING THE WAR MAINTAINED BY AMSCO HISPEED SEALERS

in the packaging of

Ammunition • Rations C, J, K, and components
Sulfanilamide • Dehydrated Vegetables and Soups
Surgical Dressings • Dried & Frozen Foods



If you have problems in packaging for the war effort, consult us.
Our efforts are devoted entirely to help Win the War!

AMSCO PACKAGING MACHINERY, INC.
31-31 Forty-Eighth Ave., Long Island City, N. Y.

AN EAGLE EYE FOR COLOR

Because our technicians have an 'EAGLE EYE' for color they have been able to view color problems with acute discernment. If you want to be well informed on this important subject write today for any or all of the following:

- ☐ **COLOR ACCEPTANCE** — Its Normal Demands and Wartime Limitations
- ☐ **COLOR SURVEY REPORTS** Products, Packaging and Space Advertising
- ☐ **SPECIMEN BOOK** Showing 48 Colors
- ☐ **COLOR FACTS SERIES** Important data on the best colors to use and why
- ☐ **EAGLE BLACKS** 21 blacks correlated to the most commonly used stocks

INDIVIDUAL _____

COMPANY _____

ADDRESS _____

EAGLE PRINTING INK COMPANY
A DIVISION OF GENERAL PRINTING INK CORPORATION
100 SIXTH AVENUE, NEW YORK
CHICAGO CINCINNATI PHILADELPHIA JERSEY CITY
BALTIMORE CAMBRIDGE

What darkens—juice

(*Continued from page 92*) juice indicates that the factor or factors responsible for this change are soluble in the filtrate. Extraction of the filtrate with petroleum ether did not affect the browning.

The degree of browning was much greater in all the samples with the 50-cc. headspace than in those with the 10-cc. headspace. Thus it would appear that oxygen must play an important role in the darkening of orange juice.

None of the constituents of the juice such as pulp, color bodies, seeds, peel, acid and sugars seemed to be involved in the browning of the juice. Studies with added sucrose, dextrose, levulose and citric acid were also made and showed no effect on color (Moore 1942). These findings support the former conclusions that sugars and fruit acids are not responsible for the darkening of orange juice.

The experimental data also show that exposure to light per se does not cause the browning of orange juice. This is in agreement with the findings of Loeffler (1941), Fellers and Buck (1941) and Fitzpatrick, Powers and Fellers (1941).

From the results of this investigation it is concluded that oxygen and ascorbic acid are the principal factors involved in the darkening of packaged orange juice. The darkening is accelerated by warm storage temperatures and retarded by cold. The rate and intensity of darkening were not significantly affected by intense light exposure.

In practice, procedures which prevent or retard the oxidation of ascorbic acid in packaged orange juice should be employed as a means of retarding darkening. Deaeration of the juice, vacuum packing or sealing under an inert gas, low storage temperatures, and the use of suitable antioxidants are to be recommended.

News story at—sale

(*Continued from page 83*) to the special for the week. The special may be a new quick-frozen food or it may be one which is in season and therefore less expensive, representing a saving for the housewife. Usually there will be a number of menu suggestions and recipes on the display piece.

At present Birds Eye is developing another phase of its display program. Although the package itself of Birds Eye food is seldom used for display, there is one instance in which it has proved valuable. However, the display stunt depends for its success upon the care taken by the grocer and the control of the package display. During the cold months, a grocer who wants to feature frosted foods will often place a dozen or so packages of a particular item on his Birds Eye case. He selects the hours when his business is most rushed because the packages should be sold while in their frozen condition. He builds a small mound of them in a prominent place and points up the package display with a poster or card, illustrating the food used in an appetizing dish. He draws attention to the item as a special. Thus, many people who might not have had in mind buying a frosted food are attracted and interested. This method of creating impulse buying has worked successfully for many grocers, but they were those who could estimate very closely how many customers during the rush hours would be induced to buy the food. Birds Eye does recommend this method of display selling to its grocers and furnishes them with information on how it may be done. However, there is the caution about the extra care and control needed to carry out the stunt successfully.

17
Distributed by
GOUBAUD
Paris-London
New York
USE SMALL LABELS?
They slash the cost of application!
Many of America's leading manufacturers have found that Kum-Kleen Labels more than pay for themselves in application savings alone, for you simply press on—no fuss—no muss—no water.
Adhere to any smooth surface!
Here again Kum-Kleen Labels are the solution to a tough problem for they adhere to any smooth, clean, non-porous surface; glass, wood, plastic, cellophane, metal, varnished paper and cardboard.
Never pop off!
While Kum-Kleen Labels are easy to apply and simple to peel off, they NEVER POP OFF like water gum labels—they have proved themselves even under intensive heat or cold.
Write for samples today!
Get the complete story of dry labeling—learn how hundreds of large manufacturers have saved and profited with Avery Labels. Write to Avery's labeling advisory service.
Kum-Kleen
LABELS

AVERY ADHESIVES, DEPT. MP 1, 451 E. 3RD ST., LOS ANGELES, CALIF.

SPECIALISTS

in the manufacture of

CAN & BOTTLE CLOSURES

LET us quote you on your requirements. Hundreds of dies and molds available for Essential Oil Cans, Sprinkler Tops, Screw Caps, Aluminum Capped Corks, Lead and Tin Coated Spouts, Metal Specialties. 80 years' experience in meeting the needs of packagers. Call upon us for aid.

CONSOLIDATED FRUIT JAR COMPANY

NEW BRUNSWICK • NEW JERSEY

Classified Advertisements

All classified advertisements payable in advance of publication. Rates: $5.00 up to sixty words; enclosed in border, $10.00 per inch. Publisher reserves the right to accept, reject or censor all classified copy.

➡ **FOR SALE : Carton Sealing Machine, Triangle, Model B. Condition like new. Reply Box 166, Modern Packaging.**

Advertisements in this section are restricted to those of a helpful nature. *Positions Wanted; Help Wanted; Lines Wanted; are typical categories.*

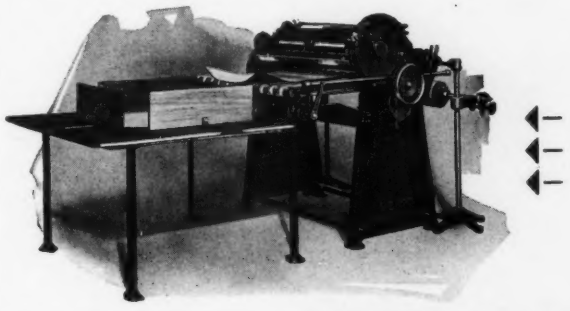
Classified Advertising Department

MODERN PACKAGING MAGAZINE

122 East 42nd Street **New York City**

In These Trying Days of

"SHORTAGE of HANDS"



The Beck Sheeter

will release hands for other work, because thru its great simplicity, it needs very little of the operators' attention, once it is set. Especially when equipped with **ELECTRIC EYE CONTROL** are you freed from human element in your sheeting work. Amazing degrees of accuracy in "spot sheeting" work, plus profitably increased outputs. The need for doing your own sheeting is probably more acute now than ever before in your business history, and this because of present conditions.

CHARLES BECK MACHINE CO.

13th & Callowhill Streets **Philadelphia, Pa.**

INDEX TO ADVERTISEMENTS

Aluminum Co. of America 23
American Can Co. . . . . Inside Front Cover
Amsco Packaging Machinery Inc. 120
Anchor Hocking Glass Corp. 31
Armstrong Cork Co., Glass & Closure Div. 27
Avery Adhesives 121

Beck, Charles, Machine Co. 121
Bemis Bro. Bag Co. 10
Burt, F. N., Co., Inc. 71

Cameo Die & Label Co. . . . . Insert 30–31
Carr-Lowrey Glass Co. 9
Celanese Celluloid Corp. 21
Classified 121
Consolidated Fruit Jar Co. 121
Consolidated Packaging Machinery Corp. 119
Continental Can Co. 11
Crown Can Co. 109
Crown Cork & Seal Co. 105

Dow Chemical Co., The 93
du Pont de Nemours, E. I., & Co., Inc., Cel-O-Seal Section 19
Durez Plastics & Chemicals, Inc. . . . . Inside Back Cover

Eagle Printing Ink Co. 120
Economic Machinery Co. 101
Einson-Freeman Co. Inc. 111–114

Gardner-Richardson Co., The 6–7

Harris-Seybold-Potter Co. 97
Hazel-Atlas Glass Co. 33
Heekin Can Co., The 103
Hinde & Dauch Paper Co. 26
Hudson-Sharp Machine Co. 119

Kimble Glass Co. 12

Lowe Paper Co. 107
Lusteroid Container Co., Inc. 118

Menasha Products Co. 32
Mid-States Gummed Paper Co. 119

Nashua Gummed & Coated Paper Co. 34
National Can Corp. 28–29
New Jersey Machine Corp. 79

Old Dominion Box Co. 18
Owens-Illinois Glass Co. 16–17
Oxford Paper Co. 20

Package Machinery Co. 84
Packaging Catalog Corp. 22
Peters Machinery Co. 117
Phoenix Metal Cap Co. 3
Pneumatic Scale Corp., Ltd. 89

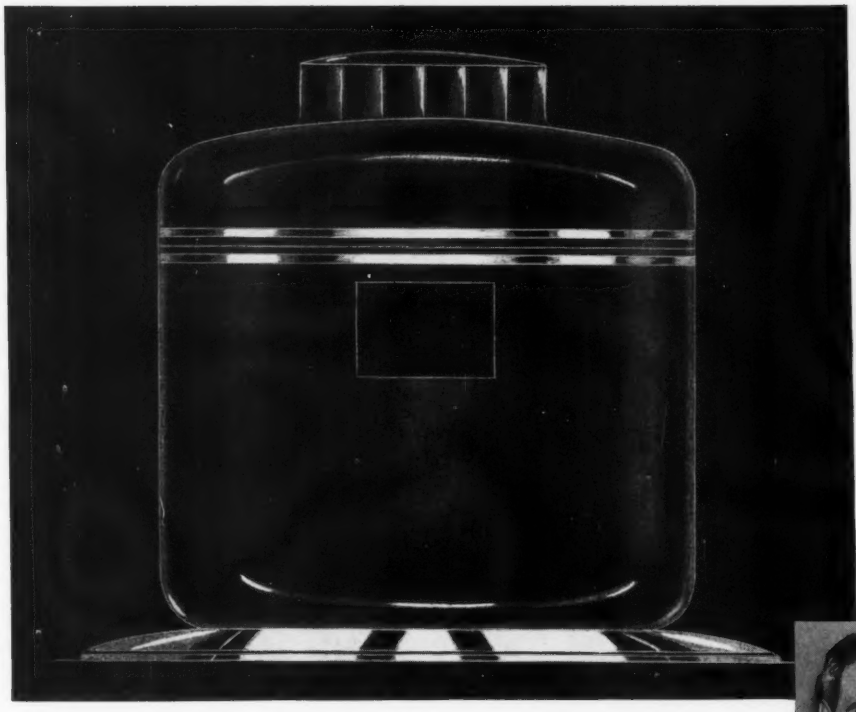
Redington, F. B., Co. 5
Riegel Paper Corp. 25
Ritchie, W. C., & Co. 13

Sav-way Industries 14
Sefton Fibre Can Co. 30
Shellmar Products Co. . . . . Back Cover
Standard-Knapp Corp. 99
Stokes & Smith Co. 91
Swindell Bros. 24
Sylvania Industrial Corp. 8

Union Bag & Paper Corp. 15
Union Paste Co. 117

Wright's Automatic Machinery Co. 95

MODERN PACKAGING
BRESKIN PUBLISHING CORPORATION
122 East 42nd St. **New York City**



THIS PACKAGE IS DYNAMITE!

CLARENCE EHAT,
Designer

To look at the utterly simple and chaste lines of Mr. Ehat's design for a humidor... you would never suspect that it is as nice a "time-bomb" as you could ask for.

And what gives this humidor its explosive character?

It's designed to create a stir in packaging circles by its use of Durez plastics. The fuse is set for the post-war days—furious days as American industry changes over to peacetime products.

For, come peace, the Durez plastics available to packaging designers and manufacturers will make their present gilt-edged reputation appear as just so much tinsel!

The new war-time uses for Durez plastics enhance as never before their versatility. Durez research now has to live in a perpetual sweat to meet our arsenals' demands. The new products from our research are guaranteed to lift your eyebrows! Durez resins for plywoods and other bonded and impregnated materials are right in there pitching, too.

Far-sighted manufacturers can assure themselves of getting the jump by keeping in touch with the war-spurred progress and improvements in Durez plastics and resins.

Our research staff will be glad to collaborate with your designers. Samples of our materials that would be particularly suitable for a product that you now have in mind are yours for the asking.

DUREZ PLASTICS & CHEMICALS, INC.
1301 Walck Road, N. Tonawanda, N. Y.

DUREZ

PLASTICS THAT FIT THE JOB

ENTIRE AIRCRAFT ENGINE INDUSTRY PACKS COMPLETE ENGINES IN MOISTUREPROOF BAGS

"VICTORY IS IN THE BAG"

SHELLMAR moistureproof bags are used by every airplane engine manufacturer in the United States. As moisture-vapor proof barriers, these bags are saving thousands of man-hours in clean-up time, and are keeping planes in the air by insuring that engines reach fighting fronts all over the world FREE FROM RUST and READY FOR INSTANT USE.

Shellmar now offers priceless experience in the application of this new preservation method (Method II) to all manufacturers of parts, sub-assemblies or complete implements of war. To support this service and meet a variety of problems, we have developed a complete range of packaging materials consisting of laminations of Cellophane, Pliofilm, metal foil, glassine, papers, etc.

Packaging engineers trained in designing packages to meet government specifications, are strategically located to serve all industries in all parts of the country.

SHELLMAR PRODUCTS COMPANY

224 South Michigan Ave. CHICAGO, ILL.
MOUNT VERNON, OHIO PASADENA, CALIF.
3115 Empire State Bldg. NEW YORK, N.Y.

COMPLETE PACKAGING SERVICE TO INDUSTRY